THE UNIVERSITY OF ALBERTA

PRODUCER SERVICES IN THE URBAN ECONOMY: A STUDY OF EXPORT CONTENT, INPUT-OUTPUT LINKAGES, AND LOCATION OF PRODUCER SERVICES IN EDMONTON

by

WIESLAW Z.MICHALAK ©

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled PRODUCER SERVICES IN THE URBAN ECONOMY: A STUDY OF EXPORT CONTENT, INPUT-OUTPUT LINKAGES, AND LOCATION OF PRODUCER SERVICES IN EDMONTON submitted by WIESLAW Z.MICHALAK in partial fulfilment of the requirements for the degree of DOCTOR OF PHILOSOPHY.

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ABSTRACT

The central goal of this thesis was to assess and evaluate the export activity of the producer service sector in Edmonton. To accomplish this goal, a survey of selected producer service sub-sectors was undertaken. The following producer service sub-sectors were included in the survey: marketing, advertising, computer, data processing, management, engineering, legal, and accounting services. It is postulated here that these producer services help other firms to become more efficient and competitive. Moreover, they export part of their output and, thus, contribute directly to the export base of cities. They also may attract other industries to the local economy.

The research design of the thesis was arranged in four stages. In the first stage, the number, size, and type of producer service firms based in Edmonton were determined. In the second stage a survey of a sample of producer service firms was conducted. At this stage, the volume and destination of exports of producer services from Edmonton was determined. The third stage of the research was designed to determine who were the customers of the producer service firms and what type of inputs were being purchased. The fourth stage was designed to establish what were the factors in the location of exporting firms.

The major findings of the thesis can be summarized as follows. Edmonton has a large and diversified producer service sector. Seventy five per cent of firms surveyed exported at least 10 per cent of their services. Over one third of the total revenue of the sector came from exports. In monetary terms the export revenue reached over 800 million dollars in

1987. Thus, the producer service sector contributed a substantial revenue to the economic base of Edmonton. The major sources of demand were government and producer service firms themselves. The survey revealed that the future of producer services in Edmonton depends on the combination of demand from the government and service sectors.

There are three major policy implications of the thesis for the producer service sector in Edmonton. First, the export of producer services can be significantly increased. Second, the government can play a key role in promoting export of these services. Third, reliability and quality of some producer services should be improved in order to increase exports of the sector.

The major success of this study is that the contributing role of the producer service sector was assessed and evaluated. Although the thesis focused on empirical testing of the assumptions relating to the export activity of producer services, some policy recommendations were possible. These results help us to understand the role producer services play in urban economies of medium size cities and thereby open the way to improve our understanding of the nature of complex changes in the economies of these cities.

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1.INTRODUCTION

In Canada, as in most other highly industrialized nations, employment in services has increased steadily throughout the last century. More recently, the increase in service employment has been accompanied by a parallel decline in employment, relatively and absolutely, in manufacturing and primary industries. The central role of commodities, such as oil, electricity, steel, and chemicals, is gradually being superseded by consumer services, public sector services, and knowledge and information based services. There has been a major transformation in employment since the 1960s in highly industrialized countries. Some types of services, such as finance, management, or research and development, rapidly have become the most critical inputs to the economic process (Stanback et al., 1981; Piore and Sabel, 1984; Ginzberg et al., 1986). In Canada these changes have had an important influence on the urban economy and the urban system. Considerable debate has emerged over the long term consequences of these changes.

The increasing importance of service inputs, particularly services used in the process of production, led some economists to forecast a gradual change to a new service economy. This new service economy is closely tied with the process of urban growth and agglomeration. The increasing concentration of population and economic activities, particularly producer services, within or near large cities, has implications for the growth of medium and small cities. There is a growing consensus among economists and geographers, that the future growth and development of cities will depend on the tertiary sector and producer services in particular (Daniels, 1985a; Marshall, et al., 1987). Producer services are those which are used as inputs to other businesses. They are increasingly exported from cities. For some large cities, service commodities have become the major source of revenue. Noyelle (1983), defined such cities as, 'diversified advanced service centers'. These centers, on top of the urban hierarchy, monopolize the trade in producer services and export them not only to national but also to international markets. The service economies of highly industrialized countries have created a network of 'world-cities' that produce and distribute the most advanced services. In other words, in modern spatial economic systems the settlement network is increasingly dominated by a very few large cities. Examples are New York, London, Tokyo and Toronto. These cities benefit the most from the new service economy. The cities at the lower levels of the urban hierarchy will face, in the near future, severe development problems. As a result, it is anticipated that existing regional disparities will widen (Noyelle and Stanback, 1984).

So far, these changes in the structure of the economy have not attracted much attention from governments in Canada. The economic policies of the federal and provincial governments are firmly entrenched in the notion that only the primary, secondary, and tourist service sectors contribute to economic growth (Economic Council of Canada, 1984). Thus, policies aimed at the development of these sectors form the core of decision-making. A continuation of such policies and further neglect of the producer service sector's role in urban economies, may be particularly important for the Canadian cities located outside the industrial core of the country (Economic Council of Canada, 1984).

The major reason for the politicians' indifference to the producer service sector is the lack of economic theory clarifying the relationship between economic growth and services. Economists and researchers from other related disciplines such as regional science, economic geography, and urban geography, are to blame for the poor level of theoretical research. Macroeconomic studies tend to underestimate the contribution of the producer service sector to urban economies and treat it as a monolithic block of economic activity. The sector, in fact, includes a multitude of economic activities. According to a recent collection of studies (McRae and Desbois, et al., 1988), producer services are important to economic growth as they are intermediate service inputs to the process of production. In the past, such services were produced within the corporate organizations of firms. However, the increasingly complex requirements, as well as the advent of computer technology, made such organization of production obsolete. The creation of producer services has been undertaken to a major degree by independent firms competing with each other. Such an organizational shift reduced input costs to industrial sectors as well as introduced highly specialized and efficient service firms. The producer services provide a vast variety of knowledge and information inputs crucial to the process of production (Noyelle, 1988).

The producer service sector is comprised of transportation, communication, business services, FIRE (finance, insurance and real estate), corporate services, and government (Hall, 1987). The focus in this thesis is on a sub-set of producer services referred to as business services. These include marketing, advertising, computer, data processing, management, engineering, legal, and accounting services. It is postulated here that these producer services play an important role in urban economic development. It is assumed, that they may help other firms to become more efficient and competitive. Moreover, they may export part of their output and, thus, contribute to the export base of cities. They may also attract other industries to the local economy. The analysis here will focus on the sub-set of producer services as it functions in Edmonton.

Edmonton was selected because it provides an excellent environment for the study of the role and contribution of producer services to the economies of medium sized peripheral cities. In the 1970s, the resource generated economic 'boom' introduced to the city and region large revenues and new employment opportunities. During that period, the economic authorities in Edmonton attempted to broaden and diversify the economic base of the city, which, to that date, had relied heavily on the energy sector. These prospects, however, weakened considerably in the 1980s due to the decline in prices for oil and gas. The expectations that the resource driven growth would give an impulse to a manufacturing sector did not materialize. The legacy of the period of rapid economic growth is, nevertheless, a more diversified and locally controlled economy. Despite the downturn of the early 1980s, most service firms, among them producer services, survived the economic slowdown to become a permanent component of the city's economic base.

As stated, municipal and provincial governments have not shown much interest in producer services. The notable exceptions are reports by Alberta Economic Development (1986) and Alberta Career Development and

Employment (1987). However, no conclusive recommendations were made as to the role of producer services in the economy of Edmonton. The central purpose of this thesis is to determine the contribution producer services make to the local economy of medium size cities. This thesis will then provide a better understanding of the role producer services play in the economic growth of such cities.

1.1 **Thesis Objective.**

The goal of this thesis is to determine the role of export activity of the producer service sector in Edmonton. The rationale for this examination is based on the assumption that producer services contribute to the local economy through exporting. The aim, then, is to evaluate empirically the export activity of the producer service sector in Edmonton. To accomplish this goal, an empirical examination of selected producer service sub-sectors was undertaken. The specific objectives are as follows:

1. Review the literature to determine the role and contribution made by the producer service sector to urban economies.
2. Determine the number, type, and size of producer service firms in Edmonton.
3. Survey a sample of producer service firms in Edmonton to determine the export contribution of this sector to the local economy.
4. Examine the structural attributes (size of firm, type of service, and organizational status) of exporting firms.
5. Determine the geographical markets, input-output linkages, and locational factors of exporting producer service firms in Edmonton.

In order to assemble primary data for this investigation, a self-administered survey of a sample of the subset of producer service firms was designed and implemented. A series of interviews with managers of selected firms were conducted. The survey and interviews were administered in Edmonton between November 1987 and April 1988. The effective response rate was 46.3 per cent which represents approximately 10.3 per cent of the universe of producer service firms in Edmonton.

1.2 **Thesis Outline.**

In the next chapter, a review of the literature dealing with the growth of the tertiary sector will be undertaken. The focus is on the role services play in the transformation of the economies of highly industrialized countries. An outline of the main themes of economic theory on services follows. A conceptualization of the specific objectives of the research as well as a detailed outline of the research design comprises chapter three. In chapter four, the structure of the producer service sector in Edmonton is examined. The sampling procedure and review of the questionnaire used in the survey of producer service firms in Edmonton are presented in chapter five. The export sales, geographical markets, and structural attributes of exporting firms are discussed in chapter six. Input-output linkages of the producer service firms and their factors of location are examined in chapters seven and eight. A summary of the findings, policy implications, and suggestions for future research are presented in the final chapter.

2. SERVICES IN ADVANCED ECONOMIES.

2.1 Introduction.

Over the past thirty years or so, the majority of employment in highly industrialized countries has shifted to the service sector. In most countries, this shift was paralleled by an employment decline in manufacturing and the other goods producing sectors. Many economists, geographers, and sociologists expressed concern about the long term consequences of this trend. These changes in the economy at large have had a profound influence upon the growth of cities in the western hemisphere. Although there are several competing theories attempting to explain these changes and incorporate them in the mainstream of economic theory, so far, no conceptualization has been entirely satisfactory.

In this chapter, the main characteristics of the transition from an industrial to service economy are reviewed. Then, changes to the economy in Western Canada are compared to these general trends. Finally, an outline of the main currents of economic theory dealing with the growth of the service sector and its role in modern market economies is presented.

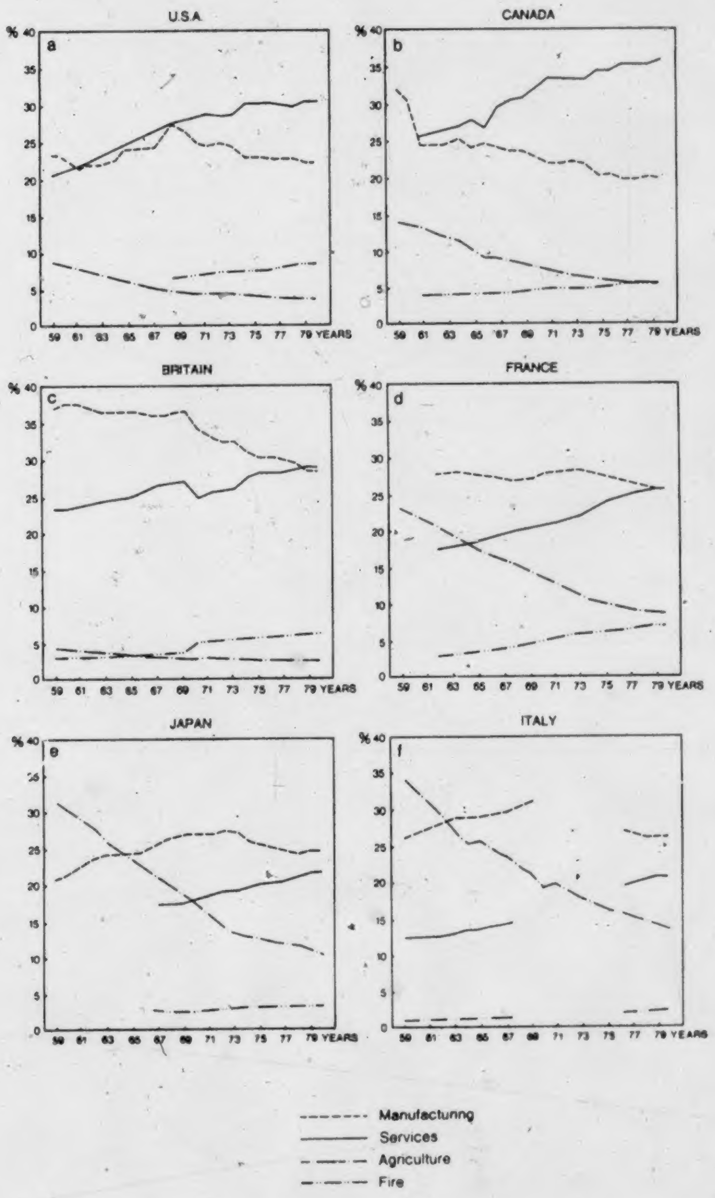
2.2 Service Economies of Highly Industrialized Countries.

International comparisons of the distribution of the labour force in the United States, Canada, Great Britain, France, Japan and Italy reveal that employment in services has increased steadily in recent decades. In the United States and Canada employment in the service sector exceeds that of other sectors of the economy (Figure 2.1). Although there are marked differences between these countries, the trend towards growth of the tertiary sector is very clear. There are several theories explaining this growth. However, all of them point to changes in the organization of production and technological progress as the principal cause of the change. As a result of this shift into a service dominated economy, the highly industrialized countries of the Western Hemisphere are, at present, undergoing a transformation of their economies into a new type of 'service' economy.

The transformation from an industrial to service economy occurs at present only in the highly industrialized countries of Western Europe, North America, and Japan. Although service employment growth in the developing countries has been quite significant (Daniels, 1982), and was approaching 5 to 6 per cent per annum in the mid 1970s, the cause of this growth is different from that in the industrialized countries. The massive population movements from rural to urban areas in the Third World countries created formidable social and economic problems. Services, such as retail trade, offered one of the major sources of employment because they do not require heavy capitalization. However, most of these jobs were low paid temporary employment in small shops, personal services, or street selling. As a result, the occupations comprising the service sector in the developing countries are quite different from those of the industrialized countries.

The economies of the soviet-type centrally planned countries such as USSR, Poland, Hungary, or Czechoslovakia are characterized by high levels of industrial employment, particularly in heavy industries. Their service employment is well below the equivalent proportions in the Western

Figure 2.1 Employment by Sectors 1959-1984 for USA, Canada, Great Britain, France, Japan and Italy.



Source: Organization of Economic Cooperation and Development (1986).

countries. Very recently there have been some attempts to reform and revive the undercapitalized service sectors, especially in Hungary, Poland and USSR. However, the general pattern of underdevelopment still prevails (Simai, 1988). The transition into service economies certainly does not apply to these countries. It is also unlikely that without implementing radical economic and political reforms, the situation will change in the foreseeable future (Maciejewicz, 1988).

The growth of service employment and the emergence of the new type of service economy in highly industrialized countries is closely tied to the growth of cities and the process of agglomeration in general. The increasing concentration of population and economic activities, among them service activities, within or near large cities, referred to as the process of metropolitanization, is one of the most common phenomena occurring in these countries. There is also the opposite trend of deconcentration of manufacturing activities resulting from urban congestion and increasing inefficiency of large urban areas as centers of economic activity (Economic Council of Canada, 1984, pp.180-181). Also the introduction of information technology enabled computer and data processing firms to locate away from the core areas of large cities. Nevertheless, large cities are still the most frequent locations for services (Economic Council of Canada, 1984). There is a growing consensus among economists and geographers, that the future growth of large cities will increasingly depend on the service sector (Daniels, 1985a; Marshall, Wood, Daniels, McKinnon, 1987). Moreover, as a result of stagnation or even decline in manufacturing employment (Figure 2.1), the future growth of the economy at large, and smaller cities lacking a manufacturing base in particular, will increasingly depend on the service sector.

2.3 Services in Western Canada.

Western Provinces, along with the rest of Canada, are characterized by a very high proportion of employment in the service sector. However, changes in the sectoral composition of the labour force in Western Canadian cities were often overlooked by economists, geographers, and policy makers. By and large they were concerned with the industrial core of Canada or the Canadian urban system as a whole. Research on Western Canadian cities focused on the primary and secondary sectors as the prime stimuli of economic growth rather than on the service sector (McCann, 1987). The service sector has been left as a vast, unexploited area for empirical research and theoretical speculation on its role and contribution to economic growth. The lack of research on the service sector promoted a view in which Western Canada was regarded as a mere periphery of the Central Canadian industrialized core. Although such a view is partly justified, it oversimplifies the significance of the current processes occurring within the economy of Western Canada.

Historically, the major commodities of Western Canada including agricultural, forest, and mineral products, have been the most important sources of economic growth and rising living standards. In the 1970s, the resource generated 'economic boom'[1], introduced to the region a new degree of economic maturity and strength (Smith, 1987). The same decade gave the Canadian West new prospects for prosperity and hopes for broadening and diversifying the economic base, particularly in resource processing and manufacturing industries. These prospects, however, weakened considerably in the 1980s due to the decline in prices for natural resources on international markets. The expectations that the resource-driven growth would give an impulse to the manufacturing sector of the economy through a spin-off effect, did not materialize. Moreover, many economists pointed out that Western Canada will never become a major area for manufacturing of finished goods due to the insufficient size of the local market, disadvantaged access to external markets, and unfavorable climatic conditions. However, by the mid-1980s, Western based firms controlled many economic activities servicing resource exploration, development, extraction, and marketing of the products of the primary sector.

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[1] This is particularly true for Alberta.

Large cities in this region may benefit the most from this trend (Daniels, 1985b; Wood, 1987; Coffey and Polese, 1987b). The pioneering study examining the role of the service sector in the economic growth of Western Canadian cities was by the Economic Council of Canada (1984). Its report has opened a vigorous debate, albeit confined to a few economists, which continues to this date. It is the intention of this thesis to contribute to this debate and, at least in part, to close the gap in understanding the role the service sector plays in the economies of Western Canadian cities. Before elaborating on the debate on the role of producer services in the urban economies, the terminology used throughout this thesis must be defined.

2.4 Defining the Service Economy.

As Coffey and Polese noted, '... the notion of the rise of the service sector as a monolithic shift within the economy is an unwarranted simplification ... for both policy and modelling purposes it is highly inappropriate to treat this collection of separate and distinct activities within a unified framework' (Coffey and Polese, 1987, p.75). For the purpose of this thesis, a classification of services proposed by Fuchs (1968) and Gershuny and Miles (1983), has been adopted.

The full range of service activities, however defined, is generally referred to as the tertiary or service economy. The tertiary or service sector comprises all firms and employees involved in production of some intangible commodity. Service products are outputs of the service sector and service occupations. Service occupations include all workers involved in the production of services. That is, they include workers employed in the tertiary sector as well as workers involved in the production of services in the primary and secondary sectors.

There are essentially two ways of defining services. The first one, classifies services on the basis of the role they play in the process of production. The particular types of services are, therefore, named after their function in this process. For example, transport services, communication services, engineering services, and so forth. The second, classifies services on the basis of the process of consumption. It distinguishes between final and intermediate consumption. Thus, there are final (or consumer) services which supply final demand (eg. retailing, tourism, domestic and personal services), and intermediate (or producer) services which are used as inputs to the production process by producers and contribute to the value of the finished product. To reiterate, the focus in this thesis is on the latter category of services and their contribution to urban economies through exporting.

2.5 Growth of the Service Sector.

At least three distinct views have been developed in the expanding literature concerned with the service sector and its relationship to economic growth. Followers of the first view, which can be traced back to Malthus (1798), Adam Smith (1825), and other classical economists, regard the service sector as inherently unproductive in terms of value creation. Manufacturing and primary industries are considered the only sources of economic growth. This view of the role of services in economic growth is held by many economists and policy-makers. Accordingly, in the 1960s several highly industrialized countries (eg. France, West Germany, and Japan) tried to discourage employment growth in the service sector through the introduction of selective tax policies. The principal goal of these policies was to promote the growth of the manufacturing sector.

The second view, introduces the concept of stages of economic development in which a shift of the labour force to the service sector is considered to be the final stage. The most influential theoretical frameworks incorporating the stage model of economic development were Fisher-Clark's model (Fisher, 1935; Clark, 1940) and Daniel Bell's (1968, 1973) concept of the post-industrial society. Both frameworks, however, were criticized for oversimplifying structural changes in the labour force composition, especially those occurring within the service sector. This restructuring includes the very rapid increase in the proportion of female workers and spatial shifts in the distribution of the labour force. Furthermore, they do not provide a satisfactory explanation for the growth of employment in the service sector.

The third view concerning the relationship of the service sector to economic growth stresses the close interdependence between the process of goods production and services. Specifically, producer services which mediate control, innovation flows, and management are regarded as crucial to the production of goods. In the opinion of many economists, there is a rapid change in how production takes place rather than the decline in the importance of manufacturing. Producer services are involved **indirectly** in the process of production. The processes leading to this change are complex and not well understood. Among the causes for change is the growing complexity of the operational level of a production system in the multidimensional corporate firm in the market economy. The specific factors responsible for the emergence of producer services will be reviewed in the next chapter in more detail.

Stanback (1979), in his analysis of the American economy demonstrated that 26.7 per cent of all intermediate outputs of firms in 1967 that were purchased by other firms as inputs for further production, were producer services. These services included wholesaling, finance, insurance, and real estate (FIRE), and a range of services collectively called 'business' services. The latter include advertising, marketing, legal, engineering, management consulting, computer services, accounting, auditing, bookkeeping, and a variety of other services such as telephone answering, janitorial work, and the provision of temporary office help. In addition, several other sectors such as transport, communication, and government provided a certain proportion of their output to the goods producing sectors (Greenfield, 1966).

Increasingly attention has been focused on the role of producer services in economic growth. Some economists have argued (Stanback, et al., 1981), that producer services occupy a strategic role in the contemporary economy. These economists estimated that in the 1970s producer services accounted for more than 25 per cent of GNP in the United States. They accounted for more value added than all manufacturing (Stanback, et al., 1981). The economic trends in Canada are similar to those in the United States.

Picot (1986) compared industrial employment with occupational distribution in Canada between 1951 and 1981. He identified the major changes in employment that have occurred during that period. The most rapid growth of employment occurred in producer services. In Western Canada, between 1971 and 1981, employment in producer services grew faster than in the rest of the country (Economic Council of Canada, 1984). For example, employment in financial services in Manitoba and Saskatchewan increased by more than twice the national average rate to reach 5.1 per cent and 4.5 per cent of the total. Employment in these services also increased nearly twice the average rate in Alberta, and marginally less in British Columbia (Economic Council of Canada, 1984). 'For 10 years, then, employment in FIRE, and community, business, and personal service industries grew considerably faster than the average in every one of the Western Provinces' (Economic Council of Canada, 1984, p.152). As a result, the share of the labour force employed in FIRE was 5.6 per cent in British Columbia, and 5.5 per cent in Alberta in 1981. It was higher in these two provinces than the Canadian average of 5.4 per cent, and lower only than Ontario which had 5.9 per cent of its labour force employed in these services in 1981.

It is understandable that producer services have received increasing attention from those interested in urban and regional development. Producer services have been identified as a sub-set of the service sector worthy of particular attention because of their potential role in urban economies. The next chapter will address the issue of the role of producer services in urban and regional economies.

3. THE ROLE OF PRODUCER SERVICES IN THE URBAN ECONOMY.

3.1 **Introduction.**

This chapter has two goals. The first goal is to review the literature pertaining to the role of producer services in the urban economy. The second goal is to outline the research design of the thesis. The research design is discussed in the sections of this chapter following the review of the relevant literature. The first section of the chapter reviews the role of producer services in the process of production. The focus then is on the relationship between producer services and an urban economy. Specifically, the export contribution of producer services to the urban economy is reviewed. A detailed outline of the research objectives follows. Three aspects of producer services are the focus: their export sales, the input-output linkages of exporting producer service firms, and the factors influencing their location. In the summary of the chapter, the research design of the thesis is presented in a graphical form.

3.2 **Producer Services in the Process of Production.**

The emergence of producer service firms as separate economic entities was caused by an increasingly complex and extended division of labour in modern economies (Walker, 1985). The key factors contributing to comparative advantage and to capital accumulation have shifted from efficiency of labour directly involved in the production process to inputs of producer services. Thus, producer services should not be regarded as 'services' in the conventional sense, but rather as indirect inputs into the production process. Their major function is that of planning and development, capital allocation, control and management, purchasing and franchising. In other words, there has been a major change in the way the productive system of the economy is organized.

There are essentially two ways in which producer services are utilized in the process of production. The first mode is through intra-firm distribution of producer services. That is, the services are produced 'in-house' within the corporate organization of a large firm, and then used as inputs in the productive process through intra-firm channels. Some head-offices of large manufacturing establishments provide producer services, made 'in-house', to all other departments and branches of the same company. For example, Northern Telcom, a large Canadian manufacturing firm producing telephone systems, employs only one fifth of its work force actually involved in production. The rest is engaged in designing, planning, programming, marketing, and problem-solving. Four fifths of the work force is involved in broadly defined producer service activities (The Economist, August 22, 1987).

The second mode involves producer services produced by separate firms operating in competition with each other. This process of 'externalization' of the provision of producer services led to the emergence of the producer service sector.

As far back as 1956, Stigler (1956) suggested that there are two factors which influence the decision to 'make' a producer service within a firm or to 'buy' it on the external market. The first one is referred to as 'complementarity' and denotes the extent to which a producer service can be provided internally without raising the firm's costs of carrying out other functions, that is, without competing with other functions for existing scarce resources within the firm. The second factor is economies of scale. Keeping specialized service personnel on the firm's payroll may be justified only if the firm attains a certain size or scale of operation. However, Greenfield (1966, p.57) provided contrary evidence and concluded that specialization rather than economies of scale must be seen as the driving force behind externalization of producer services. Only later in the development of a market for producer services do scale economies become a precondition for extending the market to firms that otherwise would have been unable to purchase services (i.e. by bringing prices down). More recently, Wood (1986) has suggested that the decision to 'make' or 'buy' producer services is increasingly arbitrary and depends on the internal organization and management policies of individual firms.

The reasons for contracting out producer service inputs are, therefore, complex and not very well understood. Nevertheless, according to Howells and Green (1986a, 1986b) the current trend is towards further externalization of producer services. In the last thirty years the demand for producer services has grown steadily and the trend is expected to continue in the future (Gershuny and Miles, 1983).

There are at least two explanations for the growing demand for producer services. First, the growth of demand is a result of changes in organizational and institutional arrangements of the private sector of the economy. Foremost has been the shift towards more complex and advanced managerial structures resulting in a growing scale of operations, size, and complexity of administrative, managerial, and planning functions of firms. The greater technical, spatial, and social division of labour within the modern economic system, as well as on the level of the individual firm, has increased requirements for coordination and integration (Howells and Green, 1987). Lambooy and Tordoir (1985) pointed out that the growing demand for producer services is dependent on the division of labour and on the amount of interconnected elements at the operational level of a production system. The increasing burden of administrative and development functions posed new and urgent demands for specialization of producer services. Demand is first within firms themselves, and then, as it rises past certain thresholds, it stimulates the development of firms selling on the market. This process, referred to earlier as externalization[1], stresses one of the fundamental role of producer services in modern economies, that of integrating or 'binding' together the increasingly differentiated, and specialized parts and functions of the firm.

Second, the growing demand for producer services has been caused by the rising rate of product innovation and market differentiation in response to quickly changing market conditions and a shortened product-life cycle. 'In large measure the expansion [of producer services] ... has resulted from a growing need for intermediate services and human capital in an economy characterized by an increased sophistication in terms of **what** it produces and **how** it carries out production' (Stanback, et al., 1981, p.1). This, in turn, has necessitated greater utilization of such services as research, design and development, marketing, specialized training, finance and investment. Producer services became a 'strategic economic activity' because they put other firms in a better position to make unprogrammed adaptations such as new product development and marketing, expansion into new markets, mergers and takeovers. Services such as advertising, public relations, strategic planning, forecasting, product innovation, and management consulting, assist adaptation of a firm. New 'managerial technology' includes a host of new techniques such as inventory control, market analysis, product testing, cash budgeting, financial control, and capital investment analysis (Stanback, et al., 1981). Financial service innovations assist the formation of new ventures or facilitate the reduction of risks or transaction costs. Public relations consulting provides liaison or lobbying services which deal with various levels of government and procurement of governmental as well as private contracts.

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[1] Noyelle (1988, p.82), refers to this process as 'vertical disintegration'.

In the center of these developments is **competition**. In the modern industrial system it forces firms to be adaptive and responsive. Competition compels firms to utilize elaborate intelligence gathering enabling greater flexibility and responsiveness to change. 'Ability to see new opportunities and to seize them rapidly is the most valuable ability to have. And nearly all the occupations relevant to the development and rapid adaptation of technical and managerial change are service occupations' (Marquand, 1983, p.128).

Producer services are argued by some economists to be important in the growth of contemporary economies[2]. The increasing size of operations, often involving firms in different countries, has expanded markets outside the national boundaries (for example the car, micro-chip, home appliances industries). This expansion has created a demand for sophisticated and specialized producer services to help deal with changing economic conditions, increasing competition, changing consumer preferences, and trade laws and regulations in different countries. Not surprisingly, the attention of many researchers concerned with urban and regional development has turned towards the contribution of producer services to urban economies.

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[2] See Stanback, 1979; Stanback, et al., 1981; Stanback and Noyelle, 1982; Gershuny and Miles, 1983; Noyelle and Stanback, 1984.

3.3 **Producer Services in the Urban Economy.**

Stabler and Howe (1988) reviewed the literature dealing with the role of services generally and producer services in particular in urban and regional economies. According to them, the possibility that producer services contribute directly to the economic base of cities, as well as providing an essential environment for the development of exporting sectors, was acknowledged already by North (1955, 1956) and Tiebout (1956). More recently, economists and geographers focusing specifically on the relation between the urban economy and producer services, stress that at least a portion of the output of the producer service sector is exported from cities. However, there is no single framework which explains clearly the interrelationship between urban growth, the development of producer services and exports of these services.

The most recent studies indicate at least three different ways in which producer services can stimulate an urban economy. First, they contribute to urban economies through the creation of new jobs. As alluded to earlier, the producer service sector has been for the last twenty years the fastest growing sector of the economy in terms of employment (Wood, 1987; Marshall, et al., 1987; Gillespie and Green, 1987; Ley and Hutton, 1987). Second, producer services can contribute to the urban economy by exporting some proportion of their output beyond the confines of the city in which they are located. In this way they may reinvest revenue in the local economy and thereby contribute to the export base of a city. Third, as discussed previously, they can contribute, through investment and innovation, to the technical and organizational change in the process of production.

3.3.1 **Export Sales of Producer Services.**

The focus in this thesis is on the exports of producer services. The objective is to determine the size, structure, and export contribution of the producer service sector in Edmonton. According to recent research, the major exporters of producer services are large, often international companies located in a few large metropolitan centers. From such a perspective, medium size cities such as Edmonton, located on the periphery of the national economy, will increasingly depend on imports of producer services from larger metropolitan centers located in the industrial heartland of Canada and the United States. The local producer service sector in Edmonton, according to this view, can be expected to be small and relatively insignificant in terms of its contribution to local employment, revenue, and technological change (Michalak and Fairbairn, 1988). In order to evaluate this notion a detailed examination of the producer service sector in Edmonton was undertaken. The research design is organized in four stages.

In the first stage, the number, size, and type of producer service firms in Edmonton is examined. The research objective here is to determine the size and structure of the producer service sector in Edmonton. At this stage, a detailed list of all producer service firms in Edmonton is compiled. The second stage of the research is designed to determine the volume and destination of exports of producer services from Edmonton. To this end, a sample of Edmonton based firms was surveyed. To determine which firms in Edmonton are involved in exporting producer services, the survey included questions about the structural attributes of the firms. The third stage of the research is designed to learn who are the customers of the producer service firms in Edmonton and where and what type of inputs are being purchased. The objective of this examination is to determine whether there are large differences between exporting and non-exporting firms with respect to their input-output linkages with other sectors of the local economy. The final stage of the research is designed to determine why producer service firms are located in Edmonton. Specifically, why producer service firms, particularly those which are exporting, decided to locate their offices in Edmonton. In the remainder of this chapter, the details of the research procedure as well as relevant literature pertaining to exports, input-output linkages, and locational factors of the producer service firms are reviewed.

As stated above, the objective of the second stage of the research procedure is to determine whether there are any firms in Edmonton which export producer services. Conventionally, in formal trade and investment economic models, services are viewed as non-tradeable. That is, they do not contribute directly to the economic base. Because services are non-tradeable their output, prices, and input levels are determined in response to changes in tradeable sectors of an economy, that is, to the primary and secondary sectors. The demand for non-tradeable service outputs, such as producer services, is regarded as being entirely local in nature, and supported by the income generated by exporting sectors. This view of the trade of services is predominant in most theoretical work on services (McRae and Desbois, 1987).

This conclusion has been increasingly questioned in recent years. Significant changes in the organization of production, discussed earlier in this chapter, have advanced the tradeability of services, particularly producer services. Advances in computer and communication technologies, as well as changes in the organization of business have expanded potential markets for producer services beyond local markets. It is now possible for suppliers of such services as advertising, marketing, engineering, information storage and retrieval, or management consulting, in one market area to serve directly clients in another, thus breaking the need for buyers and producers to locate in the same geographic area.

There are several recent studies dealing with the export potential and contribution of producer services to the economies of medium sized cities. Because the results of these studies are particularly relevant to the investigation of the exporting function of producer services in Edmonton, they are reviewed in more detail below. The results of these studies were used to design a research procedure for an examination of exports of producer services from Edmonton.

The summary of selected results of the studies relevant to this thesis are presented in Table 3.1. All surveys reported between 23 per cent

(Marshall, 1983) and 60 per cent (Daniels, 1984) of exports of producer services outside the local market. Thus, the producer service firms located in these cities contributed a large proportion of their revenue to the export base. Although there were substantial differences in the research designs, all authors tried to demonstrate the most important differences between exporting and non-exporting firms. The objective was to determine what structural attributes differentiate exporting firms from the rest of producer service firms. To this end, the sample of firms was examined using data on the structural attributes of the firms (organizational status, type of service, and size of firm).

There was a strong association between the organizational status of a firm and exports (Table 3.1). In summary, head-offices had much larger export sales than other types of firms (Marshall, 1983; Daniels, 1984; van Dinteren, 1987). Van Dinteren reported, that over 70 per cent of the revenue of the head-offices in the Netherlands came from exports. However, in North America (Ley and Hutton, 1986; Beyers and Alvine, 1986) there was a much weaker association between organizational status and exports (Table 3.1). In all studies, the strongest association was between the type of service and exports. Generally, there were two groups of producer service firms. The first group includes engineering, management, computer, and research and development sub-sectors. All had large export sales. The second group includes legal, accounting, and employment services which had large local sales. Advertising services form a separate group with large local sales by North American firms but predominantly export sales by European firms.

Table 3.1 Summary of findings on export sales of the producer services.

Relationships between structural attributes
of firms and export sales
(strength of association)

AUTHOR	EXPORTS %	ORGANIZATIONAL STATUS	TYPE OF SERVICE	SIZE OF FIRM	EXPECTED CHANGE
Ley and Hutton (1986) Canada, Vancouver, 714 firms	29	fair	strong	strong	40% increase
Export sales		head-offices	engineering management architects	large firms	
Local sales		branch firms	legal advertising accounting employment	small firms	
Marshall (1983) UK, 3 cities, 378 firms	23	strong	strong	strong	–
Export sales		head-offices	computer management advertising		
Local sales		branch firms	legal		
Daniels (1984) UK, 8 cities, 304 firms	30 to 60	strong	strong	strong negative	–
Export sales		head-offices independent firms	finance insurance		
Local sales		branch firms	producer services		
van Dinteren (1987) Netherlands, 13 cities, 459 firms	43	strong	strong	strong negative	–
Export sales		head-offices	computer engineering advertising		
Local sales		independent firms branch firms	legal employment accounting		
Beyers and Alvine (1986) USA, Seattle, 1,105 firms	55.5	no association	strong	no association	50% increase
Export sales			research and development		
Local sales			advertising accounting		

Beyers and Alvine (1985) pointed out that it has been common among economists to regard the local market as the main focus for small firms. The major difficulty for a small firm to expand its sales beyond the local market is its limited marketing and promotion ability to penetrate more distant markets. Large firms, on the other hand, usually have an extensive marketing network or corporate organizational structure, that enables them to penetrate sometimes very distant regions. Also, according to Cannon (1980) and Birch (1987), it is conventional thinking among economists that service firms in general and small firms in particular, tend to have only a local market focus since services cannot be inventoried and shipped as are manufactured products. The belief held by many economists, as well as entrepreneurs, is that small size is an insuperable disadvantage to exporting (Cannon, 1980, p.143).

In his survey of two hundred producer service firms located in the United Kingdom, Cannon (1980) attempted to identify the reasons for the lack of faith in export prospects of many managers in small enterprises. He concluded that small firms can be divided into three groups according to the manner in which they export. The three groups were:

non-exporters - where there were no records of, or knowledge of, the firm ever meeting a direct export order (i.e. initiated by an external customer);

passive exporters - where there was a history of meeting export orders but without any direct sales or marketing effort to win an export contract by the producer;

active exporters - where there was a pattern of winning an export market through direct sales and marketing efforts by the producer.

Cannon found through his survey that the overwhelming majority of firms were passive exporters. He also agreed with the arguments of the economists supporting the hypothesis that the small size of firm is a disadvantage in exporting.

The majority of managers in exporting producer service firms regard exports as a process of selling already existing output (Cannon, 1980, p.144). Moreover, all small firms invest little or no effort in market selection. The small exporting firms are either relatively undiscerning of the orders serviced or follow a large number of markets where opportunities are believed to exist. The major reason for this unselective approach is a lack of resources and time to take advantage of existing information. The majority of small firms particularly lack management time to identify the payoffs from market research. The sheer volume of relatively unstructured information available to most small firms with little time to organize it appears to be a major factor in poor use of market intelligence. For these reasons, many researchers concluded that small firms' managers make poor use of external sources of information, advice, and assistance (Cannon, 1980). The combined effect is their widespread belief that the small size of a firm is a significant barrier to entry to export markets.

Contrary to this widely held opinion, Cannon (1980) found that a surprisingly large number of small firms had highly geographically diversified markets. Four other studies investigated the association between the size of firm and exports. The results of these studies are very different (Table 3.1). Ley and Hutton (1986) and Marshall (1983) suggested a strong positive association, while Daniels (1984) and van

Dinteren (1987) found a strong negative correlation. In their large sample of producer service firms, Beyers and Alvine (1986) found no correlation. In the opinion of Beyers and Alvine this was a very significant finding which refuted earlier suggestions that small firms cannot be successful in exporting producer services.

Two studies, Ley and Hutton (1986) and Beyers and Alvine (1986), attempted to predict changes in exports of producer services in order to determine the potential revenue contribution of the sector to the economic base. In both cases, almost half of all respondents expected a significant increase in exports sales over the next five to ten years. This finding led the authors to conclude that the export contribution of the producer service sector would increase in the future.

The studies reviewed above demonstrate that the level of regional exports is a significant variable in determining the contribution and significance of the producer service sector to an urban economy. The results also indicate that producer services may play an important contributing role in the economies of medium sized peripheral cities. Contrary to findings suggested by Noyelle (1983) and Noyelle and Stanback (1984), some provincial cities have substantial exports of producer services. Six specific objectives presented below are designed to determine the volume and destination of producer services' exports from Edmonton (second stage of the research design p.25).

1. To estimate the volume of export revenue of the producer service sector in Edmonton. The objective is to determine what proportion of the total revenue of this sector originates from exports.

2. To determine where Edmonton based producer service firms sold their services. The objective is to examine the geographical markets for the producer services exported from Edmonton.
3. To determine whether there are any large differences in structural attributes of exporting firms. Three attributes will be included: type of service, organizational status, and size of firm. On the basis of the earlier findings, it can be expected that there will be a strong association between type of service and level of exports. Accounting, legal, and employment services will have the most local markets. The most export oriented sub-sectors will be engineering services, computer services, and management consulting.
4. To examine the future export potential of the producer service sector in Edmonton.
5. To evaluate the impact of geographical market strategies on export sales of producer services.
6. To determine the reasons for selecting geographical markets.

3.3.2 Input-output Linkages of Producer Service Firms.

There are at least two reasons for examining input-output linkages of the exporting producer service firms. The first is to determine who are the customers of the producer service sector. In this way, the source of the demand for these services can be identified. The second reason is to determine whether there are variations in input requirements of exporting and non-exporting producer service firms.

The growth of the producer service sector is usually explained in terms of an increase in purchases of these services by the primary and secondary sectors. Marshall (1982) has shown that the way in which goods producing firms use producer service inputs has an important bearing on their performance. For example, firms using management consulting services achieved, through improvements in labour productivity, a substantial return on their initial investment. Accordingly, most of the research on the producer service sector has focused on the linkages between the manufacturing and service sectors (Britton, 1974; Marshall, 1982). However, Daniels (1984) and van Dinteren (1987) demonstrated that producer service firms themselves have extensive input-output linkages with other service firms which have an important impact on the local economy. Although producer services are viewed primarily as suppliers of intermediate inputs to other sectors of the economy, they are themselves unable to internalize all their input requirements. Producer service firms themselves are undergoing a process of specialization and occupational restructuring. As a result, these firms have extensive input linkages to labour, services, and tangible commodities. Damesick (1986) suggested that a large proportion of the demand for producer services originated from within the producer service sector itself, from local and central governments, and also the construction industry. The demand from the goods producing sectors is not necessarily the most important determinant of producer service sector growth. Moreover, not all service firms, as it has been suggested in the previous section of this chapter, are locally linked and dependent on the local industrial base. In other words, the organization and intra-sectoral input-output linkages within the producer service sector can significantly affect the demand for these services.

Marshall (1983) found that some of the key linkages of exporting producer services are intra-sectoral rather then with other sectors of the economy. A producer service firm is likely to externalize its demand for inputs. This tendency explains the small average size of producer service firms which prefer to subcontract parts of their contracts rather than permanently enlarge their staff (i.e. internalize inputs). Typically, in order to complete a contract, several small specialized producer service firms temporarily form a 'business group' which works together until a particular contract is completed. The same firm may be involved, at the same time, in several different business groups. Business groups may also hire independent 'foot-loose' consultants, make short term appointments or utilize available higher education research facilities. The life-span of such groups is usually quite short and does not exceed the time necessary to finish a contract. The end result of such a structure is a 'complex of corporate services'. This type of organization replaced the simple partnership organization of producer service firms characteristic of the early stage of development (Marshall, 1983).

A city's economy is influenced by the commercial linkages of businesses and other firms through inputs and outputs, and by the organizational relationships of firms. The more inputs purchased by an exporting firm in the same city where the firm is located, the larger its contribution to the local economy. Exporting firms obtaining inputs from local rather than non-local businesses contribute part of their revenues to an urban economy (van Dinteren, 1987). Those that are part of a larger organization (branch firms) and other firms which do not draw on local economic potential (often importing goods and services), contribute to a loss of potential revenue.

The distinction between indigenous and nonindigenous firms indicates the location from which a firm is controlled. Indigenous firms such as head-offices and independent firms are controlled from within the city in which they are located. Nonindigenous firms are controlled from an external head-office located in some other city (Daniels, 1983; van Dinteren, 1987). Nonindigenous firms not only contribute to the loss of some proportion of revenue channelled back to a head-office in some other location but also are more vulnerable to fluctuations in economic conditions. Also, personnel in nonindigenous firms are generally less educated than in indigenous firms (van Dinteren, 1987, p.673). In the case of nonindigenous firms, there is an important distinction between internal inputs (i.e. inputs received through other segments of the same firm) and external inputs. Van Dinteren (1987) suggested that nonindigenous firms typically internalize such services as accounting and marketing but externalize inputs of goods (i.e. office furniture and equipment). On the other hand, indigenous firms use more local inputs of services and goods than branch firms.

The structure of the input-output linkages of exporting producer service firms only recently became an area for research. Very little theoretical and empirical work has focused, to date, on the importance of these linkages to an urban economy. The results of three such studies are summarized below. The purpose of this review is to formulate a detailed research design for an examination of the input-output linkages of exporting producer service firms in Edmonton.

All three studies share the same research design. First, the focus is on the output linkages of the producer service sector firms with their customers. In this way, the sectors of the economy which use producer services as inputs can be identified. Second, the input linkages of producer service firms themselves are examined in order to determine whether firms draw on local economic potential. Third, the input-output linkages of exporting and non-exporting firms are examined in relation to the structural attributes of the firms. In this way, it is possible to determine the input requirements of the exporting firms.

Two studies examined output linkages of the producer service sector to other sectors of the economy (Marshall, 1983; van Dinteren, 1987). A summary of the results is presented in Figure 3.1. In both cases, the largest proportion of the output was purchased by the manufacturing and construction industries, followed by other customers. The latter category included transport, wholesale, retailing, and a variety of domestic and personal services. The output linkages to the primary sector were weak. Both, Marshall and van Dinteren found strong linkages with government and the producer service sector itself (Figure 3.1). The combined purchases by the service sector were much larger than by the goods producing sectors.

There were statistically significant differences in output linkages (using chi-square as the measure of association) between various sub-sectors of the producer service sector. Legal, architectural, and accounting services had the strongest linkages with final consumers. All other sub-sectors had a relatively low proportion of output sold to this market. The computer service sub-sector had the strongest linkages with

Figure 3.1 Output Linkages of the Producer Service Sector To Other Sectors of the Economy: Percent of Sales.

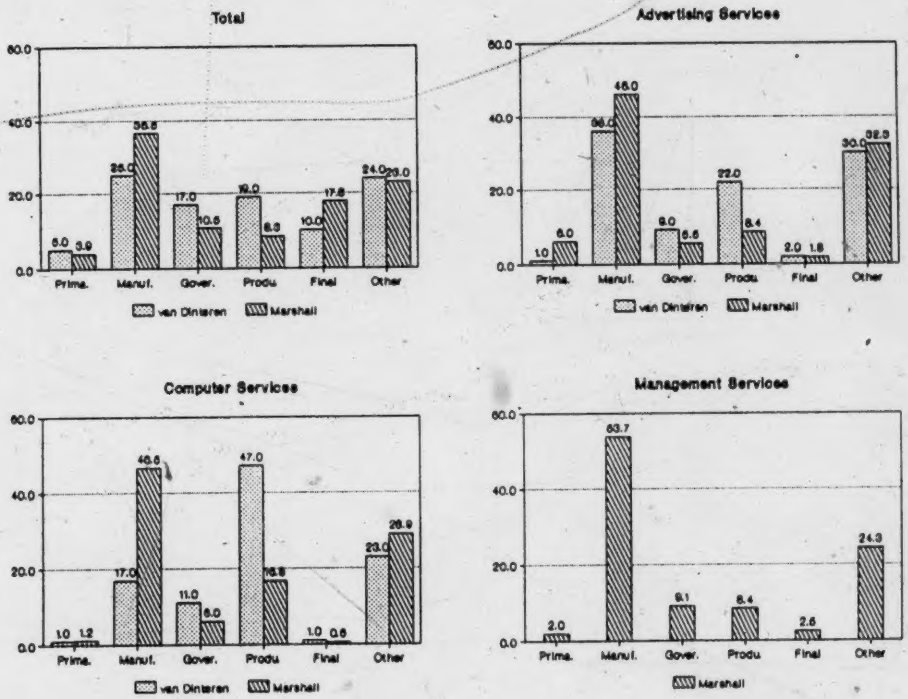
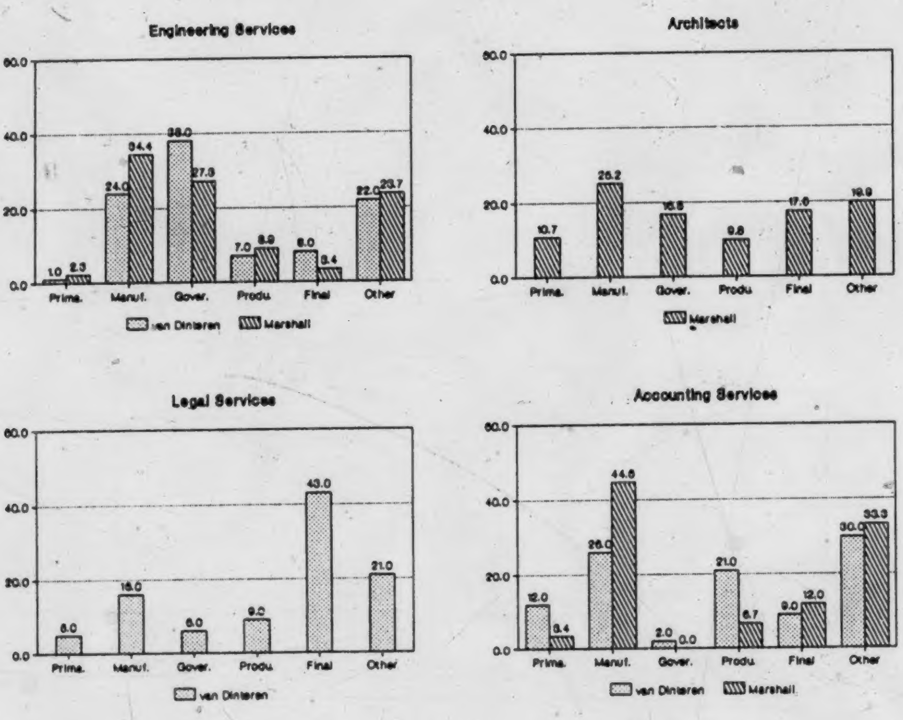


Figure 3.1 Continued.



Source: Marshall (1983), van Dinteren (1987).

the producer service sector. Also advertising services had relatively strong sales to the producer service sector. However, the largest purchases were made by the manufacturing sector. The engineering service sub-sector had very strong linkages to the public sector, followed by the manufacturing sector.

Daniels (1984) and van Dinteren (1987), focused on input linkages of the producer service firms. Between 50 and 80 per cent of nonindigenous firms purchased their service inputs internally, that is, from parent head-offices located in other cities. The corresponding figure for tangible inputs (i.e. office equipment and supplies) was between 40 and 45 per cent. Most of the external inputs were purchased within the same urban area. However, the proportion of locally obtained tangible inputs was, in both studies, higher than the proportion of local service inputs. There was a significant association between the organizational status of a firm and the volume of non-local service inputs. Indigenous firms had larger local service inputs compared with nonindigenous firms. On the basis of these observations Daniels (1984) concluded that indigenous offices were an important stimuli to the local economy since a large proportion of their revenue was reinvested in local businesses. In contrast, nonindigenous firms contributed much less to the local economy. A large proportion of their revenue was channeled back to the head-offices. Van Dinteren noted, that peripheral cities in the Netherlands (eg. Apeldoorn, Breda, Hellmond) in which employment growth in producer services was significant, had a large proportion of nonindigenous firms. However, in his opinion, in spite of the loss of potential revenue, nonindigenous firms contributed significantly to local economies in the form of new employment opportunities.

In the light of these findings, and the theoretical concepts reviewed earlier in this chapter, the research design of the input-output linkages of exporting firms in Edmonton will consist of the following:

1. To determine the linkages (i.e. volume of sales) of producer service firms with their customers. It can be expected that a large proportion of the output linkages will be with other producer service firms.
2. To determine the input linkages of the producer service firms.
3. To analyze input-output linkages of the producer service firms and their relationship to the structural attributes of the firms.
4. To determine the reasons for hiring non-local subcontractors by local producer service firms.

3.3.3 Factors in the Location of Producer Services.

Economists and geographers argue that corporate headquarters of large companies play a dominant locational influence on producer service firms (Marshall, 1982; Stanback and Noyelle, 1982; Coffey and Polese, 1987). The demand for producer services tends to be concentrated in head-offices of large, often international multisite, corporations rather than branch firms. In most highly industrialized countries, such corporate headquarters are heavily concentrated in just a few large metropolitan centers[3]. In other words, there are large disparities in the occurrence of producer services between large and medium sized cities.

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[3] A notable exception is West Germany which has several urban centers characterized by high concentrations of corporate headquarters (Schoeller, et al., 1984).

The close relationship between the concentration of producer service firms and corporate headquarters is usually explained through some variant of contact theory or theory of information diffusion (Tornquist, 1970; Pred, 1977). In Pred's information diffusion theory, the availability of relevant information is the crucial determinant of the location of office activities. The majority of studies concerned with the locational characteristics of producer services stress the importance of interpersonal contacts and communication which are more effective in a highly competitive economic environment than other forms of exchange of information (Gottmann, 1970). Face-to-face contacts are more effective because specialized information, which is the basic commodity of producer services, is never universally available. In Pred's terminology, information is 'spatially biased' (Pred, 1977). 'That is, because of the means by which different forms of specialized information circulate through contact networks, the probability of a particular bundle of specialized information being known or acquired varies from place to place at any given time' (Pred, 1977, p.20). Thorngren (1970) argued, that face-to-face contacts are most effectively and efficiently undertaken in the largest metropolitan cities. Thus, producer service firms locate their offices in the downtown areas of the largest metropolitan centers (Daniels, 1985a).

The increasing concentration of producer services in a few large metropolitan cities is reflected in the growing polarization between 'producer services rich' cities on top of the urban hierarchy and 'producer services poor' cities at the lower levels of the urban hierarchy. This polarization of cities in terms of their economic characteristics and the position they occupy in the national hierarchy has implications for the future development of an urban system. Coffey and Polese (1986) postulated that the concentration of producer service firms in large cities will result in a further gravitation of new head-offices of large firms towards these large metropolitan areas. This will happen because producer services are able to meet the increasingly non-standardized requirements of corporate offices. Thus, the large cities have the best prospects for growth in terms of employment opportunities and export revenues compared with smaller centers (Stanback and Noyelle, 1982; Noyelle and Stanback, 1984).

This conclusion has been increasingly questioned in recent studies. For example, Beyers and Alvine (1985) argued, that medium sized cities also export some proportion of producer services outside the local market. Therefore, producer services may play an important growth inducing role at lower levels of the urban hierarchy as well. The question arises, what factors of location led to the development of exporting producer service firms in medium sized cities. Although contact theory, or one of its variants, account for some of the important location factors, there are a number of shortcomings to this approach. First, it cannot explain the growth of producer services in smaller cities. In some cases, medium size provincial cities do not have any corporate headquarters of international companies. In spite of that, as empirical surveys have shown[4], such cities often have a well developed producer service sector with extensive trade linkages to other urban centers. Second, it is virtually impossible to test contact theory in practice. Its usefulness for empirical research is very limited.

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[4] For example Marshall (1983), Daniels (1984), van Dinteren (1987).

There are two other approaches to the location of producer service firms. The first one is based on Weberian type location theory and the second is based on the behavioural approach to industrial location. The Weberian type location model was originally intended for an analysis of the location of heavy industries, such as iron and steel, that were in the vanguard of nineteenth century industrial development (Weber, 1909). The emphasis was placed firmly upon the individual firm as the object of study and upon the variables which should influence the choice of locations. A similar emphasis is apparent in the behavioural approach which, nevertheless, focuses directly upon the way in which the variables identified by normative theory are actually perceived and interpreted by those responsible for making locational decisions.

The least-cost location model of producer services proposed by Coffey and Polese (1987) rests firmly in the Weberian tradition. The approach of the authors is deductive. It proceeds from a set of basic propositions regarding the objectives of decision-makers. It is also normative in that it indicates the optimal outcome (i.e. minimal cost) for the entrepreneur that may be expected under a clearly specified set of conditions defined by a series of simplifying assumptions. According to Coffey and Polese, the factors influencing the location of producer service firms are not fundamentally different from those that influence other types of economic activity. What is to be expected is some change in the relative importance of particular location factors rather than a change in the location factors themselves.

On the basis of Coffey and Polese's model it can be expected that head-offices of large corporations are the major market pull factor for producer services. As in contact theory, the headquarters of large companies largely define the points of market pull at which costs of communication (both inputs and outputs) are minimized. Various types of services have different locational considerations because of varying input and communication requirements. Computer services, engineering services, and management consultants are sensitive to city size, and costs of hiring subcontractors. However, Coffey and Polese noted that their model did not explain the concentration of some producer services in smaller Canadian cities. Although some producer services were highly concentrated in the largest urban centers, Toronto and Montreal, a simple hierarchical market oriented model, such as theirs, is not necessarily appropriate to explain the location of producer services in smaller cities. Locational factors operating at the local level in smaller cities are not taken into account in their model.

The problem of regional inequality in the distribution of producer services proved difficult to explain by means of deductive models derived on the basis of classical location theory. The behavioural approach to the location problem offers a complementary framework.

Profit maximization has long being considered a principal motive of locational behaviour of decision-makers. This principle, together with its variants such as the minimum cost location principle adapted by Coffey and Polese, has been increasingly criticized. The assumptions about the principal motives of entrepreneurs are embraced within the concept of economic man. Of course, in reality, no individual can possess the complete knowledge of all relevant economic information. Therefore, the optimal locations of normative models remain unattainable objectives.

According to Simon (1957, 1959) and March and Simon (1958), the concept of satisfising behaviour offers a more realistic interpretation of locational choices because of the assumption that the exact future is unpredictable. As a result, an optimal location for profit maximization may subsequently be overtaken by events and factors outside the control of the decision-maker. Satisficing in this concept, is the idea that decision-makers do the best they can on the basis of such information as they acquire (March and Simon, 1958).

Simon (1959) recognized the importance of 'personal considerations' to the location decision and argued that the location decision consists of two inputs: objective inputs and assessments, and subjective judgments. The objective assessments correspond to profit-maximizing evaluation of economic factors such as transport and communication costs, labour costs, and agglomeration economies (i.e. market pull). These correspond broadly to pull factors in deductive models. The subjective judgments arise from the values and perceptions held by individuals involved in locational decision-making. These, in turn, arise successively through the information obtained about the environment and by acting in the environment (Persson, 1979). Daniels suggested, that '... objective analyses may indicate several equally adequate locations, thus leaving the final decision to subjective assessments ...' (Daniels, 1984, p.117).

The fourth stage of the research in this thesis is to determine why exporting producer service firms are located in Edmonton (p.25). The approach adopted in this thesis is based on the behavioural model. Thus, there are two sources of input to the locational decision: objective assessment and subjective judgments. The objective assessment is referred to in this thesis as an 'economic evaluation' because it corresponds to the normative principles derived from the works of neo-classical economists. The subjective judgement inputs to the location decision are referred to as a 'non-economic evaluation'. They broadly correspond to the principles of location embodied in behavioural models.

Both inputs are considered to play equally important roles in the location decision (Chapman and Walker, 1987). A considerable literature exists on factors which influenced location decisions of manufacturing plants, but almost no equivalent work has been done on producer services. Beyers (1984) included in his survey of the Portland region two questions referring to the choice of location. He was specifically concerned with the impact positive and negative perceptions of the economic environment in Portland had on the choice of location (Table 3.2).

The most frequently cited reasons for locating in Portland region were 'good economy and potential for growth', and 'need for our service in the region'. Over 50 per cent of all the firms in the sample cited these two reasons most frequently. Both items referred to the economic evaluation of the location. The third most frequently chosen item, however, was 'the quality of environment in the region'. In other words, the third most important reason for locating in Portland was a non-economic qualitative factor reflecting judgments of the decision makers. Some 7 per cent of respondents did not consider any location factors specified on Beyers's list. 'Presence of specific industries in a region' as a positive location factor was chosen by 6.7 per cent of respondents. Other economic factors were chosen by only a small proportion of the respondents (Table

3.2).

The overall pattern which emerged from Beyers's survey reflects the 'footloose' nature of producer service firms. Production inputs could be met by a number of alternative locations. Economic location factors such as communication and transport costs, quality of the work force, presence of specific industries in the region, typically considered as very

Table 3.2 Beyer's Survey of Positive and Negative Perceptions of the Economic Environment, Portland Region, 1984.

Positive Perceptions of the Portland Region	%
Good economy and potential for growth	28.6
Need for service in region	25.5
Quality of the environment	14.8
No perception	7.0
Presence of specific industries in the region	6.4
Population size (potential market)	3.1
Communication and transport	2.8
Quality of regional workforce	1.1
Ties within firm in the region	0.6
Other positive perception	10.1
Negative Perceptions of the Portland Region	**%**
Nothing negative	42.0
Lack of economic diversity and cyclical nature of the local economy	9.2
Distance from major cities	6.0
Small size of the region	5.7
Competition	5.7
Poor economy in the region	3.6
Conservative business climate	3.6
Poor tax structure (high taxes)	2.7
Parochial attitudes in the region	1.5
Other negative	20.1

Source: Beyers (1984), Survey of the Portland Region.

important in deductive models, were relatively insignificant for the sector as a whole. The cost of such inputs played an insignificant role relative to the perceived potential for growth of the local economy and the need for a specific service in the region. Other locational factors, such as 'quality of environment', reflect the high importance attached to non-economic judgments about the potential location.

Table 3.3 Reasons for Locating Producer Service Firms in the Greater Vancouver Region.

Economic Factors	%
Size of the Vancouver market	63.4
Access to specialized labour pools	39.4
Access to production inputs	33.3
Proximity to other markets	30.6
Lower production costs	9.9
Non-economic Factors	
Founder lived in Vancouver	74.7
Personal preference for the region	68.9

Source: McRae and Desbois (1987), (modified).

These observations have been supported by results of a recent survey of producer service firms in Vancouver (McRae and Desbois, 1987), (Table 3.3). Although the list of factors was not exactly comparable between the two studies, McRae and Desbois found that the most frequently cited locational factors were also non-economic. They were, 'founder lived in Vancouver' and 'personal preference for the region'. Only one purely economic factor, 'size of Vancouver market', was cited by over 60 per cent of the respondents. All other economic factors were cited much less frequently.

Two aspects of the location of producer services are examined in this thesis - first, factors of location, and second, images of the economic environment held by the entrepreneurs. Four research objectives can be formulated:

1. To determine the most important economic factors of location within Edmonton.
2. To determine the most important non-economic factors of location within Edmonton.
3. To examine images of the economic environment in Edmonton held by the respondents.
4. To determine the extent to which these images influenced the ratings of the factors of location.

The first part of this analysis will be based on the results of a rating procedure. To this end, two lists of locational factors were submitted to the respondents. A detailed description of these lists is presented in the fifth chapter of this thesis.

The second part of the analysis focused on an examination of the images of the economic environment held by the respondents. The sample of firms was classified according to the type of image. For the purpose of this thesis, an image of the economic environment was defined as the sum of the positive and negative perceptions of the economic environment. Two sets of statements corresponding to such perceptions were submitted to the respondents. Then, the frequencies of citing each statement were used as a basis for a classification of the images of the respondents. A cross tabulation of these images with the mean scores of the locational factors was used to determine the extent to which the images influenced the ratings of the locational factors.

3.4 **Summary.**

The research design of the thesis is presented in Figure 3.2. The present chapter constitutes the first two stages of this design. Secondary data were used to describe the employment and number of firms in the producer service sector in Edmonton. These were compared with the corresponding data for Calgary and Alberta. In the next stage of the procedure a survey of the producer service firms in Edmonton was implemented. The results of this survey were used as the primary data source for this thesis. Three research areas were focused on in the survey; export sales of producer services, input-output linkages of the exporting producer service firms, and locational factors of the firms. The research procedures designed to analyze the data are presented in detail in Figures 3.3, 3.4, and 3.5.

The data on exports of producer services in Edmonton were broken into two groups (Figure 3.3). The first group included firms exporting at least 10 per cent of their output outside Edmonton. The second group included firms exporting less than 10 per cent of their output[5]. Then,

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[5] The 10 per cent limit was selected for reason of compatibility with other studies (Beyers and Alvine, 1985).

Figure 3.2 Research Design of the Thesis.

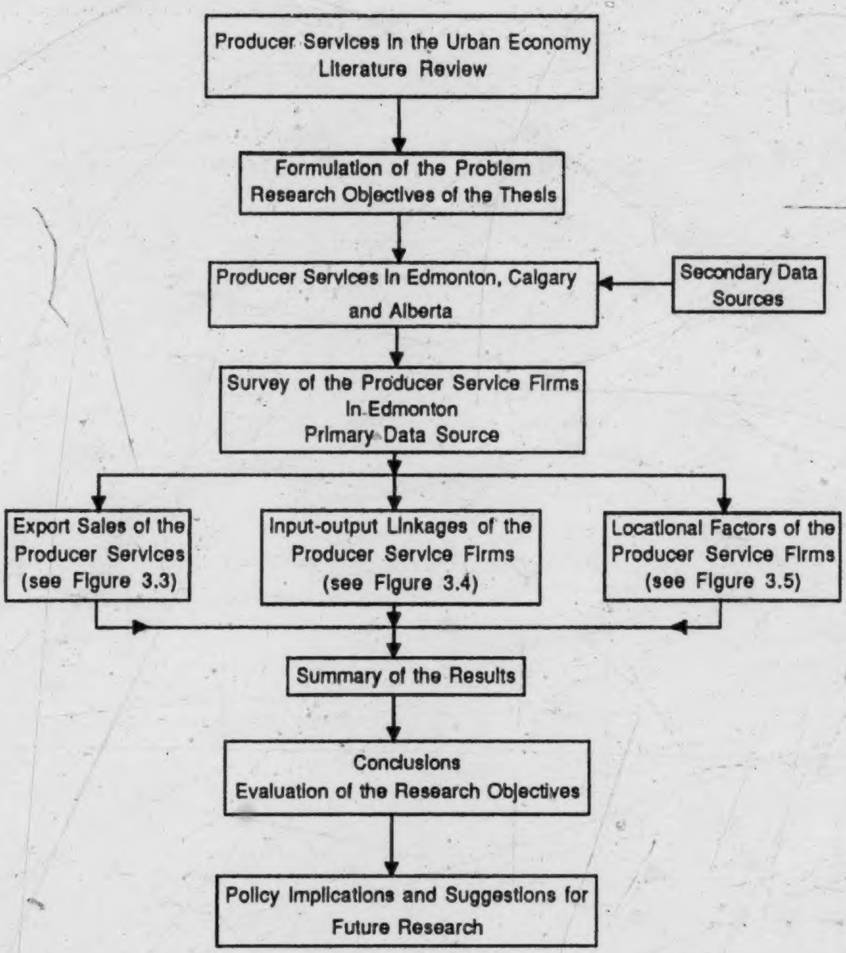

Producer Services in the Urban Economy
Literature Review
Formulation of the Problem
Research Objectives of the Thesis
Producer Services in Edmonton, Calgary and Alberta
Secondary Data Sources
Survey of the Producer Service Firms in Edmonton
Primary Data Source
Export Sales of the Producer Services (see Figure 3.3)
Input-output Linkages of the Producer Service Firms (see Figure 3.4)
Locational Factors of the Producer Service Firms (see Figure 3.5)
Summary of the Results
Conclusions
Evaluation of the Research Objectives
Policy Implications and Suggestions for Future Research

Figure 3.3 Research Design of Export Sales of Producer Services.

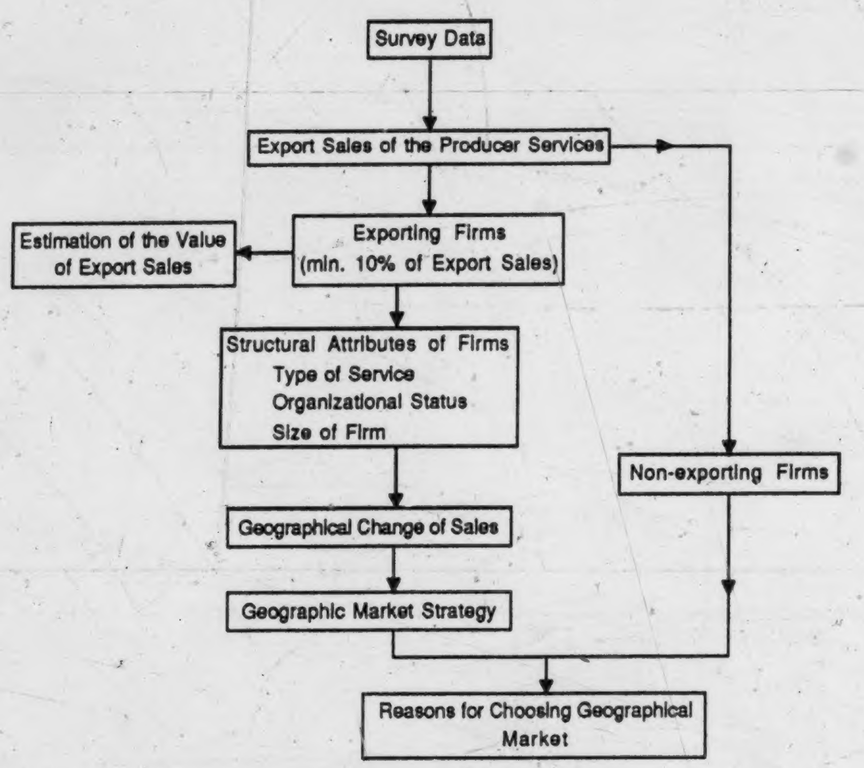

Survey Data
Export Sales of the Producer Services
Estimation of the Value of Export Sales
Exporting Firms (min. 10% of Export Sales)
Structural Attributes of Firms
Type of Service
Organizational Status
Size of Firm
Non-exporting Firms
Geographical Change of Sales
Geographic Market Strategy
Reasons for Choosing Geographical Market

Figure 3.4 Research Design of Input-output Linkages of Producer Service Firms.

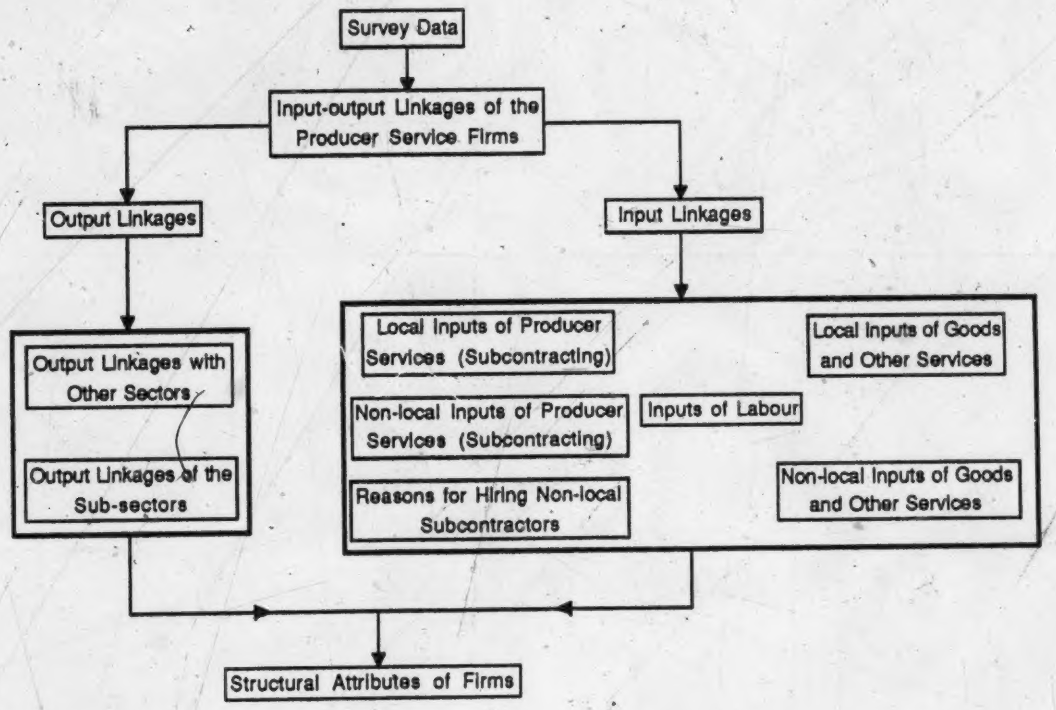
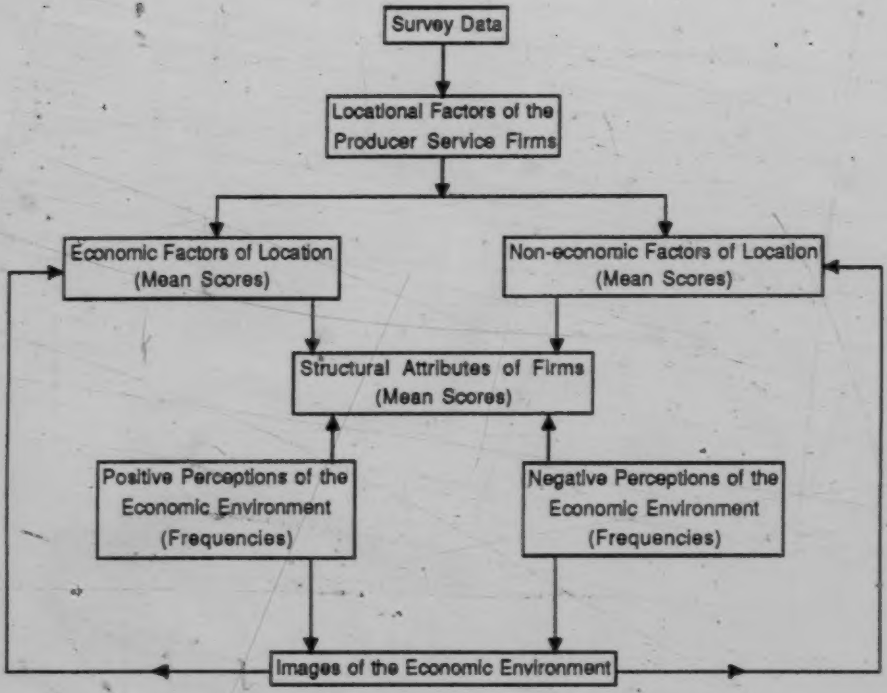

Survey Data
Input-output Linkages of the Producer Service Firms
Output Linkages
Input Linkages
Output Linkages with Other Sectors
Output Linkages of the Sub-sectors
Local Inputs of Producer Services (Subcontracting)
Local Inputs of Goods and Other Services
Non-local Inputs of Producer Services (Subcontracting)
Inputs of Labour
Non-local Inputs of Goods and Other Services
Reasons for Hiring Non-local Subcontractors
Structural Attributes of Firms

Figure 3.5 Research Design of the Locational Factors of Producer Service Firms


Survey Data
Locational Factors of the Producer Service Firms
Economic Factors of Location (Mean Scores)
Non-economic Factors of Location (Mean Scores)
Structural Attributes of Firms (Mean Scores)
Positive Perceptions of the Economic Environment (Frequencies)
Negative Perceptions of the Economic Environment (Frequencies)
Images of the Economic Environment

each group of firms was cross tabulated with a number of variables. The variables included in the analysis were geographical markets, structural attributes of firms, changes in geographical markets, geographic market strategies, and reasons for choosing local or non-local markets.

Input-output linkages of the producer service firms in Edmonton were analyzed in two separate stages (Figure 3.4). First, the output linkages of the exporting firms to other firms in and outside Edmonton were established. Second, input linkages of exporting firms were examined. Three types of inputs were considered: inputs of producer services, labour inputs, and inputs of goods and other services. Inputs of goods and services were broken down into local and non-local inputs. Non-local inputs of producer services (subcontracting) were analyzed in further detail in order to determine the reasons for hiring non-local subcontractors. Both input and output linkages were cross tabulated with the structural attributes of firms.

The research design for the analysis of the locational factors of the producer service firms is presented in Figure 3.5. The mean scores of the factors of location and frequencies of the perceptions of the economic environment were cross tabulated with the structural attributes of firms. Then, the images of the economic environment were cross tabulated with the mean scores of the factors of location.

Finally, the results from the above research procedures were summarized and referred back to the research objectives of the thesis (Figure 3.2). Evaluation of the research objectives of the thesis was then used to formulate the policy implications for the exporting producer service firms. Suggestions for future research conclude the thesis.

In the next chapter, the structure of the service sector in Edmonton is reviewed. The objective of this review is to determine the number, size, and structure of producer service firms in Edmonton. Then the structure of the producer service sector in Edmonton is compared with the major characteristics of the producer service sector in Calgary and Alberta. The aim of this comparison is to determine the similarities and differences between Edmonton and the rest of the province.

4. PRODUCER SERVICES IN ALBERTA AND EDMONTON.

4.1 Introduction.

The objective of this chapter is to determine the size and structure of the producer service sector in Edmonton. The review is based on an analysis of the employment, number, and type of firms in each sub-sector of the producer service sector. The first section of the chapter outlines the major characteristics of the service sector in Alberta, the second reviews in detail the producer service sector in Edmonton. The aim is to determine similarities and differences between the producer service sectors in Edmonton and in Alberta.

The producer services included in the study are:

- **marketing services** (advertising agencies, outdoor advertising agencies, radio and TV representatives, marketing research agencies, miscellaneous advertising, and direct mail advertising);
- **employment services** (employment agencies, and temporary aid services);
- **computer services** (computer programming services, data processing services, and computer related services);
- **management and public relations consulting services**;
- **legal services**;
- **engineering consulting services** (engineering services, and non-commercial research companies);
- **architectural design services**;
- **accounting services** (accounting, auditing, and bookkeeping services).

The structure of this sector will be examined in terms of employment distribution, number of firms, size of firms, and type of organizational status of firms. Also, where data will permit, the dynamics of change between 1971 and 1986 of the sector will be investigated. Finally, the distribution of producer service firms between Edmonton, Calgary, and rest of Alberta will be compared to set the relative strength of this sector in Edmonton in the context of the Albertan economy.

4.2 **Producer Service Employment in Alberta.**

Employment in all service sectors (including the construction industry) accounted for over 81 per cent of all the gainfully employed labour force in Alberta in 1984 (Table 4.1). Of the remaining 18.7 per cent of the active labour force, 8.5 per cent was employed in the primary industries, and 10.2 per cent in manufacturing. Producer services (business services in the table), as indicated here, accounted for approximately six per cent of the total employment in Alberta. This was a small proportion when compared with the public sector, 13 per cent, community services, 15 per cent, and the retail trade sub-sector which employed almost 14 per cent of the labour force. These figures do not reflect the revenue contribution of each sector channeled back to the regional economy. For example, the contribution of the primary sector was far greater than the 8.5 per cent share of employment would imply. Similarly, the contribution of producer services to the economic base was much greater than their share of employment (Economic Council of Canada, 1984).

From a perspective of regional employment growth, producer services were the fastest growing sector of Alberta's economy between 1971 and

Table 4.1 Employment by Sectors in Alberta, 1984.

Sector	Number of Firms Number	%	Employment Number	%	Average Number of Employees Per Firm
Goods Producing Industries	13,857	15.1	175,552	18.7	13
Primary	9,406	10.2	79,665	8.5	8
Manufacturing	4,451	4.9	95,887	10.2	22
Service Industries	77,993	84.9	762,684	81.3	10
Construction	11,320	12.3	53,928	5.7	5
Wholesale Trade	5,998	6.5	55,480	5.9	9
Retail Trade	12,440	13.5	128,265	13.7	10
Transportation	4,665	5.1	46,233	4.9	10
Communication and Utilities	289	0.3	27,903	3.0	97
Finance, Insurance, Real Estate	5,419	5.9	53,165	5.7	10
Business Services	9,637	10.5	54,326	5.8	6
Community Services	-	-	142,137	15.1	-
(both Comm. & Publ.Ad.)	22,660	24.7			
Public Administration	-	-	126,191	13.5	-
Other Services	5,565	6.1	75,056	8.0	13
All Sectors	91,850	100.0	938,236	100.0	10

Source: Statistics Canada (1984) Business Micro-Data Integration and Analysis, Unpublished Data.

1981. This growth was much the same as similar increases in other Western Provinces (Table 4.2). The community, business, and personal service sectors grew by almost 96 per cent in Alberta in that decade (Economic Council of Canada, 1984). These sectors contributed 30 per cent of all new jobs created in the province (Table 4.2).

Table 4.2 Change of Employment by Industry and Province 1971-1981.

Sector	Alberta	Manitoba	Saskatchewan (% of increase)	B.C.	Canada
Primary	9.3	1.6	5.3	5.7	3.6
Secondary	8.0	10.7	6.7	10.2	13.9
Services	82.6	87.6	87.9	84.2	82.4
Construction	13.8	3.3	11.6	8.2	5.8
Transport and Communication	8.1	9.5	7.2	7.2	7.2
Trade	17.5	18.0	20.7	17.8	18.7
Finance, Insurance, Real Estate	7.3	8.1	7.7	6.8	7.2
Community, Business, Personal Services	30.0	41.0	33.1	36.4	36.9
Public Administration	5.9	7.7	7.6	6.8	7.2

Source: Economic Council of Canada (1984), (modified).

In all sub-sectors of the producer services the index of employment growth[1] (Table 4.3), was above the national average. The fastest growing were computer services which grew eleven fold between 1971 and 1981. Management consulting services followed closely and increased in employment eight times. Also employment in services, architectural design services, engineering consulting services, and miscellaneous services grew three to four times faster than employment in other sectors. Slower growth occurred in accounting, advertising, and legal services. These expanded approximately two to three times faster than the average for all industries.

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[1] The index of employment growth was calculated by comparing the industry rates of growth by province with the all-industry rate of growth for Canada.

Table 4.3 Index of Employment Growth in the Community, Business, and Personal Services Sectors by Province 1971-1981.

	Alberta	Manitoba	Saskatchewan	B.C.	Canada
Sector		(All industries average = 100)			
Education	59.6	121.6	93.0	112.1	89.0
Health and Welfare	100.5	243.1	227.3	160.8	168.1
Recreation	96.8	214.2	217.6	116.8	208.7
Business Services	352.4	510.5	574.4	258.7	332.4
Employment Services	438.7	416.1	162.1	273.2	384.2
Computer Services	1,143.2	3,022.0	7,753.0	1,004.0	1,466.6
Security Services	284.3	458.7	470.5	308.3	308.4
Accounting Services	204.0	285.3	370.5	169.1	227.0
Marketing Services	296.3	444.5	576.2	156.6	205.4
Architects	435.8	152.8	528.6	390.8	251.3
Engineering Services	362.9	614.7	482.4	190.4	287.5
Legal Services	287.9	369.7	535.7	249.8	246.4
Management Services	865.0	1,269.3	1,636.1	1,142.5	1,079.1
Miscellaneous	332.0	720.2	885.5	262.1	391.3
Personal Services	19.3	-66.1	-111.9	6.2	6.9
Accommodation and Food	180.9	318.3	344.9	190.8	258.2
Miscellaneous	203.5	319.3	415.9	184.0	280.3
Total	127.5	221.6	198.2	152.8	169.6

Source: Economic Council of Canada (1984), (modified).

More recent data showed further employment growth in the producer service sector in Alberta (Table 4.4). According to Statistics Canada (1984) and (1986), employment in producer services grew by 31 per cent between 1984 and 1986.

Table 4.4 **Employment in the Producer Service Sector in Alberta 1984 and 1986.**

Sub-sector	1984 (1) Number ('000)	1984 (1) %	1986 (2) Number ('000)	1986 (2) %	1984-1986 % of change
Marketing	0,9	2.0	1,4	2.2	35.7
Employment	4,8	10.8	4,9	7.6	2.0
Computer	2,3	5.2	3,4	5.3	32.3
Management	3,6	8.1	4,3	6.7	16.3
Legal	8,0	18.1	12,3	19.1	35.0
Engineering	19,0	42.9	31,1	48.3	38.9
Accounting	5,7	12.9	7,0	10.9	18.6
Total	44,3	100.0	64,4	100.1	31.2

Source: (1) Statistics Canada (1984).
(2) Alberta Career Development and Employment (1987).

The largest increase was in engineering consulting services which employed almost 40 per cent more workers in 1986 than in 1984. This was followed closely by advertising, legal, and computer service employment which grew by over 30 per cent in each case. Management consulting and accounting services grew by 16 and 18 per cent respectively. The slowest rate of employment growth was in the employment and personal service sub-sector which increased by 2 per cent only.

4.3 **Producer Service Firms in Alberta.**

Accurate records showing the actual number of producer service firms in Alberta do not exist. The existing sources are subject to sampling and non-sampling errors caused by the variety of sampling techniques and methodologies employed (Alberta Career Development and Employment, 1987, p.3-2). The producer service sector is characterized by a very high rate of closures and openings of firms. In 1987 about 25 per cent of all firms in this sector were new firms which replaced no longer active establishments (Alberta Career Development and Employment, 1987). Also the exact classification of producer service firms is often very difficult. Many firms specialized in several services and often changed their specialization. For example, additional to their main area of specialization, engineering firms often provided a variety of computer related services as well as management consulting services. It is very difficult for many firms to separate various services into clear cut categories. The existing data are, therefore, at best an estimation of the true number of firms in each sub-sector.

According to Statistics Canada (1984), 10.5 per cent of all firms in Alberta were providing producer services (Table 4.1). The average number of employees in a producer service firm was low (6 employees), compared to other sectors (Table 4.5). Only the construction sector firms had, on average, fewer employees than producer service firms. Over 30 per cent of producer service firms in Alberta were specializing in engineering consulting. The very high employment growth of this sub-sector indicates the importance of engineering as the leading producer service activity in Alberta. Miscellaneous services was the second largest group of firms, 15.4 per cent. The size of this 'catch-all' sub-sector demonstrates difficulties in categorizing producer service firms. The miscellaneous producer service sub-sector included a large variety of services which did not fit any other category. Examples of such services are auction services, interior design and decorating, waste disposal, escort services, immigration and car storage. This group of services cannot be considered a 'sector' in the same sense as the other more homogeneous sub-sectors including firms which provide essentially the same type of service.

Table 4.5 Alberta Producer Service Sector 1984.

Sub-sectors	Number of Firms Number	%	Employment Number	%	Average Number of Employees
Marketing	297	3.1	936	1.7	3
Employment	220	2.3	4,750	8.7	22
Computer	432	4.5	2,258	4.2	5
Management	1,397	14.5	3,586	6.6	3
Security	112	1.2	1,703	3.1	15
Legal	1,471	15.3	7,974	14.7	5
Engineering	2,941	30.5	18,996	35.0	7
Accounting	1,271	13.2	5,718	10.5	4
Miscellaneous	1,496	15.4	8,405	15.5	6
Producer Services	9,637	100.0	54,326	100.0	-

Source: Alberta Career Development and Employment (1987), (modified).

The third largest group were legal services, 15.3 per cent, followed by management consulting firms, 14.5 per cent, and accounting service firms, 13.2 per cent (Table 4.5). All remaining sub-sectors were represented by fewer than 10 per cent of the total number of firms. The smallest number of firms were in the employment service sub-sector, 2.3 per cent.

In all, the producer service sector employed 54,326 workers in 1984 in Alberta (Table 4.5). The largest proportion, that is 35 per cent, was employed in engineering consulting. The second largest number of employees was in the miscellaneous services sub-sector. The third largest group of employees was in the legal service sub-sector which employed almost 15 per cent of labour force engaged in producer services. Accounting services was the last sub-sector with a share of more than 10 per cent of the labour force in Alberta's producer service sector.

In summary, the employment data presented in this section demonstrated that the producer service sector was the fastest growing segment of Alberta's economy in the last two decades. This growth was much the same across Canada (Economic Council of Canada, 1984). More recent statistics showed that employment in this sector continued to grow very fast, relative to other sectors, in the three years from 1984 to 1986. There were 20,100 new jobs created in this sector despite the overall slower growth of the regional economy. The most significant gains occurred in engineering consulting, advertising, legal, and computer services.

4.4 **Urban Distribution of Producer Services in Alberta.**

In Alberta, over 78 per cent of all producer service firms in the sub-sectors examined here were located in Edmonton and Calgary (Table 4.6). The least concentrated were offices of accountants of which 63 per cent were located in the two largest cities. The most concentrated were engineering, management consulting, advertising, and computer service firms. Over 80 per cent of these firms were in Edmonton and Calgary (Table 4.6). Such a very high concentration of economic activity reflects what Coffey and Polese referred to as the sensitivity of producer services to urban externalities (Coffey and Polese, 1987). That is, the costs of producing and delivering producer services rises rapidly below an urban size threshold of approximately 500,000.

Export employment market shares, estimated on the basis of location quotients (Table 4.7), show even higher concentrations of producer services in a few very large Canadian cities. According to Coffey and Polese's estimates, almost 95 per cent of 'export' employment (i.e. above the national average for the sector) was concentrated in just six cities in Canada. Almost half, 44.6 per cent, of export employment was in Toronto. However, the second largest 'export center' in Canada was Calgary, 17.6 per cent, almost one fifth of Canada's export employment in producer services. In all, Western Canadian cities had a 35 per cent share of the export employment in producer services. In view of the

Table 4.6 Number of Producer Service Firms in Edmonton, Calgary, and Alberta 1986.

	Edmonton		Calgary		Edmonton and Calgary		Rest of Alberta	
Sub-sectors	Number	%	Number	%	Number	%	Number	%
Marketing	80	37.0	105	49.0	185	86.0	30	14.0
Employment	40	29.0	57	42.0	97	71.0	40	29.0
Computer	121	31.0	204	52.0	325	83.0	67	17.0
Management	473	40.0	520	44.0	993	84.0	189	16.0
Legal	659	41.0	531	33.0	1,190	74.0	418	26.0
Engineering	505	22.0	1,468	64.0	1,973	86.0	321	14.0
Accounting	433	33.0	394	30.0	827	63.0	486	37.0
Total	2,311	32.4	3,279	45.9	5,590	78.3	1,551	21.7

Source: Alberta Career Development and Employment (1987), (modified).

peripheral location of Western Canadian cities this was a very high share of producer service employment.

Edmonton and Calgary together accounted for 22.4 per cent of the 'export employment' in 1981. Particularly strong were the engineering consulting, architectural design, and management consulting services.

Table 4.7 Market Shares of Estimated Export Employment in the Producer Service Sector for Six Canadian Urban Areas, 1981.

	Market share %						
Sub-sector	Toronto	Calgary	Vancouver	Ottawa	Montreal	Edmonton	Total
Marketing	83.6	0.1	3.1	-	13.2	-	100.0
Employment	58.1	13.0	-	16.7	-	6.9	94.7
Computer	67.9	10.2	3.4	17.7	-	-	99.2
Management	47.5	11.4	22.3	9.2	5.2	4.4	100.0
Legal	59.0	10.2	20.7	0.3	-	2.6	92.8
Engineering	0.7	45.0	21.4	9.6	2.1	12.8	91.6
Architectural	27.2	21.9	29.4	-	-	13.4	92.1
Accounting	37.4	13.7	16.9	-	17.7	4.1	89.8
Total	44.6	17.6	12.9	7.4	7.2	4.8	94.5

Source: Coffey and Polese (1987a), (modified).

Edmonton based architectural design firms had the largest share of export employment, 13.4 per cent, followed by engineering consulting, 12.8 per cent (Table 4.7). However, these results have to be treated cautiously due to the limitations inherent in all measures of concentration (Hannah and Kay, 1977).

4.5 Producer Services in Edmonton.

Edmonton was the sixth largest exporter of producer services in Canada in 1981 (Coffey and Polese, 1987). This ranking indicates that the producer service sector in Edmonton may contribute a substantial revenue to the economic base of the city. In 1986, over 30 per cent of all producer service firms in Alberta was located in this city (Table 4.6). Engineering consulting and architectural design firms, which in 1981 had 12.8 per cent of export employment in Canada, were represented by 505 offices in Edmonton. This amounted to 22 per cent of the engineering and architectural design firms in Alberta. The location quotient calculated for number of firms in Alberta, Edmonton, and Calgary (Table 4.8), revealed that Calgary had by far the largest concentration of engineering consulting firms in Alberta. Edmonton had three times fewer engineering firms than Calgary (Table 4.6). Despite this it still can be expected, on the basis of Coffey and Polese's results, that the 505 engineering firms located in Edmonton contributed substantially to the export revenues of the local economic base.

Management consulting firms located in Edmonton were estimated to have a 4.4 per cent share of the Canadian market (Table 4.7). Edmonton had also the largest proportion of management service offices in Alberta (Table 4.8). It can be expected that this sub-sector also will be very important (in terms of revenue contribution) to the economic base of Edmonton.

Coffey and Polese's estimates indicated (Table 4.7), that marketing firms located in Edmonton were not significant in interregional trade. It can be expected, therefore, that marketing services will generate over 90 per cent of their revenue from local sales (i.e. in Edmonton). This hypothesis will be tested in the sixth chapter of this thesis.

Table 4.8 Location Quotients for Producer Service Firms in Alberta, Edmonton, and Calgary, 1986.

Sub-sector	Alberta	Edmonton	Calgary	Edmonton and Calgary
Marketing	1.150	1.064	1.099	0.642
Employment	0.902	0.906	0.904	1.344
Computer	0.954	1.133	1.059	0.787
Management	1.236	0.958	1.073	0.736
Legal	1.266	0.719	0.945	1.197
Engineering	0.680	1.394	1.099	0.644
Accounting	1.019	0.653	0.805	1.704

Source: Table 4.6.

It can be assumed that accounting, legal, and employment services will be directed towards final consumers rather than an intermediate market (see section 3.3.2). The location quotient results (Table 4.8), demonstrate that firms providing these services were not distributed evenly between Edmonton, Calgary, and the remainder of Alberta. For example legal service offices were highly concentrated in Edmonton (Table 4.8). The location of such a large number of legal service firms in Edmonton may be explained by the market pull of the large public sector in this city. It can be expected that government at all levels will be a major market for legal service firms in Edmonton. Thus, most of the transactions in this sub-sector will be local. Some early support for this explanation can be found in Coffey and Polese's estimates (Table

4.7). Legal service firms, in spite of their presence in large numbers in Edmonton, had a low 2.6 per cent share of export employment in Canada. Most transactions have to be local. On the other hand, Calgary with far fewer legal service firms had a much larger proportion of export employment in this sub-sector, 10.2 per cent. Thus, legal service firms in Calgary were much more active in non-local trade than legal service firms located in Edmonton.

4.5.1 Size of Producer Service Firms in Edmonton.

The majority of producer service firms in Edmonton were small. Only 7.9 per cent of the firms employed more than 25 workers (Table 4.9). There were no significant intra-sectoral differences in the distribution of

Table 4.9 Distribution of Firms by Size and Producer Services Sub-sectors in Edmonton and Calgary 1986.

	Edmonton			Calgary		
	small	medium	large	small	medium	large
Sub-sector	1-25	26-100	>100	1-25	26-100	>100
	(As % of the total)					
Marketing	93.3	6.7	-	95.6	4.4	-
Employment	96.2	3.8	-	97.5	1.6	0.8
Computer	90.2	7.5	2.3	89.6	7.9	2.5
Management	94.9	4.2	0.9	93.3	5.7	0.9
Legal	93.9	6.1	-	92.2	4.6	3.2
Engineering	87.3	10.9	1.9	87.6	8.9	3.5
Accounting	96.8	2.4	0.8	94.4	2.8	2.8
Total	92.1	6.8	1.1	91.3	6.6	2.1

Source: Contacts Influential (1986).

service firms by size. The engineering consulting sub-sector had more than 10 per cent of medium sized firms. The largest proportion of large firms were in the computer service sub-sector, 2.3 per cent.

The export activities of small service firms has not been well researched. To date the only example is a study by Beyers (1984) who found no relationship between size of a firm and its level of export transactions. It can be expected on the basis of his study that a large number of small firms located in Edmonton will have a significant (i.e. over 10 per cent) proportion of their sales for export. This hypothesis will be tested using a survey of producer service firms in Edmonton (see section 6.4.4).

4.5.2 **Types of Producer Service Firms in Edmonton.**

The largest group of producer service firms in Edmonton was comprised of independent firms, 76.2 per cent (Table 4.10) (see p.35 for definitions). The second largest group were branch firms, 17.8 per cent, and third were head offices, 6.0 per cent. The low proportion of head offices in Edmonton compared to Calgary, 9.6 per cent, is probably the major reason why Calgary had a much higher share of export employment in producer services.

There were significant differences between sectors in terms of types of firms. The highest proportion of head offices was in the engineering consulting sub-sector, 8.7 per cent. This sub-sector also had a significant proportion of branch offices, 15.7 per cent. The highest proportion of branch offices was, however, in the computer service sub-sector. Almost one third of all computer service firms in Edmonton were branches of larger firms located outside of the city. (Christy and Ironside, 1987). A small proportion, only 6.8 per cent, of computer service firms could be classified as head offices, and most likely, a large proportion of the branch firms' revenue was channeled back to their parent head offices.

The highest degree of local control was in the producer service sub-sectors focused on the local market. Over 95 per cent of all legal service firms in Edmonton were locally controlled. Nearly the same degree of local control was in accounting service firms where only 5.5 per cent of firms were branch outlets. The small proportion of branch offices in this sub-sector does not reflect the share of the local market captured by the large international accounting firms located in Edmonton such as Price Waterhouse, Peat Marwick, Touche Ross, or Deloitte's. The exact

Table 4.10 Organizational Status of Producer Service Firms in Edmonton and Calgary 1986.

	Edmonton			Calgary		
Sub-sector	Independent Firms	Head	Branch	Independent Firms	Head	Branch
Marketing	76.2	5.7	18.1	67.3	10.6	22.1
Employment	69.8	5.7	24.5	64.5	5.8	29.7
Computer	61.9	6.8	31.3	61.4	9.8	28.8
Management	75.1	5.8	19.[illegible]	75.4	9.9	14.7
Legal	93.9	2.0	4.[illegible]	91.5	5.7	2.8
Engineering	75.6	8.7	15.7	71.6	13.4	15.0
Accounting	91.3	3.2	5.5	85.3	4.9	9.8
Total	76.2	6.0	17.8	71.5	9.6	19.0

Source: Contacts Influential (1986).

data are difficult to obtain due to confidentiality of most of the records concerning the transactions of these companies. However, it can be assumed that to justify their presence in Edmonton they have had to capture a large share of the local market.

4.6 **Summary.**

In terms of employment producer services was the fastest growing sector of Edmonton's economy between 1971 and 1986. The largest, by number of firms, were the following sub-sectors: engineering consulting, management consulting, architectural design, marketing, and legal services. Nearly all, that is 92 per cent of all firms, employed fewer than 26 workers. The independent local firms were the most numerous. However, there were significant differences in the organizational status of firms. The engineering consulting sub-sector had the highest proportion of head offices, followed by the computer service and the management consulting sub-sectors. It is to be expected that these sub-sectors contributed the most to the export component of Edmonton's economic base through their interregional trade. The possible exception is the computer service sub-sector which was characterized by a high degree of external control. This sector had the highest proportion of branch offices in Edmonton.

Edmonton in 1981 was the sixth largest exporter of producer services in Canada. However according to Coffey and Polese's (1987) results, Calgary firms made a far greater contribution to interregional trade. Producer service firms located in Edmonton and Calgary had together a 22.4 per cent share of the 'export' employment in Canada. It was a very significant contribution to interregional trade considering the peripheral location of these cities relative to the 'heartland' of the Canadian urban system and the theoretical implications of such a peripheral location.

In this chapter, the major characteristics of the producer service sector in Edmonton were reviewed. It is apparent that Edmonton has a large number of producer service firms providing a broad range of services to their customers. However, it was not possible on the basis of the secondary data used in this chapter, to determine the contribution the sector made to the local economy. To this end a survey of a sample of producer service firms in Edmonton was designed and implemented. The design of this survey is reviewed in the next chapter. The primary data aggregated from the survey were used to determine exports of producer services from Edmonton, their input-output linkages, and factors in the location of the exporting firms.

5. SURVEY DESIGN.

5.1 Introduction.

A survey was carried out between November 1987 and April 1988. It was not possible to interview all producer service establishments in Edmonton. The study, as discussed earlier, focused on selected types of services rather than on a small number of establishments in all producer services. The sub-sectors were selected on the basis of the following criteria:

1. They were providing advice and expertise to other producer firms.
2. They were identified in previous survey work by Marshall (1983), Daniels (1983), and Beyers and Alvine (1985) as exporting sub-sectors.
3. The service was selected if it required a high level of non-routine input involving specialized knowledge, expertise, skills, and resources. For this reason, business services such as equipment rental, services to buildings, or photo services were excluded from the survey.
4. Each selected service had to be represented by a substantial number of offices in Edmonton (minimum 50) so that the sample could be of a sufficient size.

The producer services selected are listed in section 4.1 of the previous chapter.

5.2 **Sampling.**

A list of service establishments in the selected categories was compiled using the Yellow Pages directory (Edmonton Telephones, 1987), Dun & Bradstreet data base (Dun and Bradstreet, 1987), Contacts Influential directory (Contacts Influential, 1987), and Consulting Index (Alberta Economic Development and Trade, 1986). The universe of 1,676 producer service establishments was compiled. Since this number was much too large for the survey it was reduced to a list of 816 establishments. Each sub-sector was sampled using random numbers tables. To verify the list all 816 establishments were contacted either in person, 138, or by telephone, 678. The results of this procedure are listed in Table 5.1.

Four hundred and forty-two of the businesses were deleted from the list for one of the following reasons:

- 140 firms refused to participate in the survey. A particularly high number of refusals was by law, accounting, and management consulting firms.
- 120 firms were no longer active. This reflected a substantial, 14.7 per cent, rate of closure, and reorganizations in Edmonton.
- 42 firms moved to other locations and could not be found, or changed their economic specialization.
- 56 establishments were listed more than once in the directory. This does not necessarily imply error in the directories consulted. Many firms, particularly those organized as partnerships such as legal and accounting businesses, are officially registered as independent economic units. They operate from within the same office. Thus,

Table 5.1 Sample by Sub-sectors.

(% in brackets)

Sub-sector	Total Sample	Refused	No Longer Active	Moved (Not Found)	Double Listing	Incorrect Code	Unable to Contact	Effective Sample
Marketing	41 (100.0)	3 (7.3)	9 (21.9)	1 (2.4)	-	-	5 (12.2)	23 (56.1)
Employment	16 (100.0)	1 (6.2)	2 (12.5)	-	1 (6.2)	-	-	12 (75.0)
Computer	100 (100.0)	6 (6.0)	13 (13.0)	12 (12.0)	11 (11.0)	14 (14.0)	6 (6.0)	38 (38.0)
Management	159 (100.0)	25 (15.7)	17 (10.7)	12 (7.5)	8 (5.0)	7 (4.4)	10 (6.3)	80 (50.3)
Legal	129 (100.0)	51 (39.5)	3 (2.3)	7 (5.4)	15 (11.6)	1 (0.8)	20 (15.5)	32 (24.8)
Engineering	140 (100.0)	10 (7.1)	29 (20.7)	2 (1.4)	4 (2.9)	4 (2.9)	5 (3.6)	86 (61.4)
Architects	89 (100.0)	5 (5.6)	18 (20.2)	2 (2.2)	7 (7.9)	-	7 (7.8)	50 (56.1)
Accounting	142 (100.0)	39 (27.5)	29 (20.4)	6 (4.2)	10 (7.0)	5 (3.5)	-	53 (37.3)
Total	816 (100.0)	140 (17.2)	120 (14.7)	42 (5.1)	56 (6.9)	31 (3.8)	53 (6.5)	374 (45.8)

Source: Survey of Edmonton 1988.

they responded to the survey as one firm. Also, many computer service firms were listed in the directories more than once since they also specialized in engineering, accounting, or architectural services.

- 31 firms were incorrectly coded in the directory or changed their specialization.
- 53 firms could not be contacted. The most frequent reasons were: the office was temporarily closed for holiday, the managerial staff was out of town for an extended period of time, the managerial staff did not have time to reply.

The final list included 374 firms which agreed to the survey.

5.3 **Response Rates.**

In all, 319 establishments were surveyed by means of mailed questionnaires, and 55 were approached for an in-person interview. Of the total, 134 questionnaires were returned (128 were usable), and 45 in-person interviews were completed. The total of 173 usable questionnaires were processed which was a 46.3 per cent overall rate of return (Table 5.2).

There were large differences in the response rates between the sub-sectors (Table 5.2). Three sub-sectors, computer services, engineering consultants, and accounting services returned over 50 per cent of the questionnaires. All other sub-sectors returned less than 50 per cent. A particularly low response rate was from the employment service sub-sector. Follow-up telephone calls failed to improve the final response rate of this sub-sector. A majority of the non-respondents were either 'too busy' to fill in a questionnaire or were 'not interested in the project'. The majority of the non-respondents in other sub-sectors regarded questions in the survey as not relevant to their profession. A useful suggestion for future surveys of producer service firms is to design a separate questionnaire for each sub-sector. The questions should be modified to reflect the specificity of each sub-sector.

Table 5.2 Response Rates.

Sub-sector	Population #	Sample #	Response Rate %
Marketing	23	10	43.5
Employment	12	3	25.0
Computer	38	20	52.6
Management	80	35	43.7
Legal	32	14	43.7
Engineering	86	50	58.1
Architects	50	21	42.0
Accountants	53	27	50.9
Total	374	180	48.1
Total Usable		173	46.3

Source: Contacts Influential (1986), and Survey of Edmonton 1988.

5.4 Representativeness of the Sample.

The 173 responses represent 10.3 per cent of all producer service firms in Edmonton (Table 5.3). There were, however, large differences in the proportion of ea[illegible]ector covered. Three sub-sectors, architectural services, engineering services, and accounting services had particularly high proportions of firms represented in the survey. The lowest coverage was in the employment service and the legal service sub-sectors.

Table 5.3 Representativeness of the Sample.

Type of Service	Universe \#	Sample \#	Per cent of the Universe %
Marketing	103	10	9.7
Employment	51	3	5.9
Computer	246	20	8.1
Management	381	33	8.7
Legal	314	14	4.5
Engineering	264	46	17.4
Architects	93	21	22.6
Accounting	224	26	10.3
Organizational Status			
Independent Firms	1,338	105	7.9
Head-offices	82	40	48.8
Branch Firms	256	28	10.9
Size of Firm			
1-5	1,102	87	7.9
6-10	268	28	10.5
11-25	203	33	16.3
26-50	60	10	16.7
51-100	30	6	20.0
101-250	8	4	50.0
251-500	5	0	0.0
Total	1,676	173	10.3

Source: Contacts Influential (1987) and Survey of Edmonton 1988.

A large number of legal firms refused to participate in the survey. Marshall (1983) proposed an explanation suggesting that solicitors and

Table 5.4 Comparison of Survey Designs and Results.

(1) Total Poulation.
(2) Sample Size.
(3) Return.
(4) Response Rate.
(5) Proportion of Returns to the Total Population.
(6) Stratification Criteria.
(7) Interviews In-person.
(8) Year of the Survey.

Author Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Beyers and Alvine (1985) Puget Sound, USA	19,000	5,000	1,099	22.0	5.8	Yes Size	Yes 1,099	1984
Ley and Hutton (1987) Vancouver	3,900	3,900	626	16.0	16.0	No	Yes 88	1984 1985
McRae and Desbois (1987) Vancouver	11,822	3,333	498	14.9	4.2	Yes Service	Yes 168	1986
Alberta Economic Development and Trade (1986a) Alberta	25,286[1]	2,459	831	33.8	3.3	Yes Service	No	1985

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[1] This study does not report the total population. Estimated for 1984 from Alberta Bureau of Statistics. The total number of returned questionnaires calculated on the basis of the figures available in the report.

Table 5.4 Continued.

Alberta Career Development and Employment (1987) Alberta	13,167 (8,013)[2]	2,331	1,114	47.8	8.5 (13.9)	Yes Size	No	1987
Van Dinteren (1987) The Netherlands	1,163[3]	770	459	59.6	39.5	Yes Size	No	1986
Daniels (1984) United Kingdom	2,438	1,172	303	25.8	12.4	Yes Service	Yes 120	1980
Marshall (1983) United Kingdom	-[4]	1,521	378	24.8	-	Yes Service	Yes 72	-
Alberta Economic Development and Trade (1986b) Alberta	1,758	1,758	1,005	57.2	57.2	No	No	1986
Michalak (1988) Edmonton	1,676	374	173	46.3	10.3	Yes Service	Yes 45	1988

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[2] The figure in brackets is an estimate based on the return sample.

[3] The total population was probably underestimated. Edmonton alone has over 1,600 firms of this type, therefore, it is ulikely that 13 medium size cities in the Netherlands had only 1,163. The same is probably true about Daniel's (1984) study.

[4] Does not report.

barristers do not consider practising law an activity that should be marketed. The majority of non-respondents and those who refused regarded questions in the survey as not relevant to their profession.

There were large differences in the representation of firms classified by organizational status (Table 5.3). Only, 7.9 per cent of independent firms returned questionnaires. On the other hand, almost half of all head-offices in Edmonton are represented in the sample.

Similarly, there were large differences in the representation of firms classified by size. In general, large firms are much better represented in the sample. Only 7.9 per cent of the small firms (employing between 1 to 5 workers) are represented. This is a very small proportion compared with 50 per cent of firms employing over 100 workers. However, the largest firms (employing between 251 and 500 workers) did not reply to the survey at all. Thus, it is difficult to claim that the survey results are applicable to the entire population of producer service firms. The results then are suggestive rather than conclusive in several cases.

To assess representativeness of this sample the results were compared with other surveys recently completed in Canada and abroad (Table 5.4). The present survey covers a higher proportion of producer service firms than surveys by Beyers and Alvine (1985), McRae and Desbois (1987), Alberta Economic Development and Trade (1986a), and Alberta Career Development and Employment (1987). Only surveys by van Dinteren (1987) and Alberta Economic Development and Trade (1986b) included a much higher proportion of their populations. It is therefore justifiable to conclude that the present survey is as representative as studies of the producer service sector elsewhere.

5.5 **The Questionnaire.**

The questionnaire booklet consisted of 12 pages including questions, directions for self-administered answers and tables (see Appendix). A total of 31 questions including 120 items, were asked. Space was provided at the bottom of the last page for comments or suggestions from the respondents. The questionnaire was divided into four major sections: structural attributes of firms, locational factors, input-output linkages, and exports of services. Each of these sections will be reviewed below.

5.5.1 **Structural Attributes of Firms.**

This was the shortest section of the questionnaire. It was designed to capture three basic economic characteristics of the firms surveyed. The first question asked respondents to indicate the organizational status of their firm. Three possible choices were provided and in the case of branch firms a following question requested specifying the location of the head office. The next two questions were to identify the service(s) provided by the firm and the number of employees.

5.5.2 **Locational Factors.**

The aim of this section was to determine why producer service firms located in Edmonton. The type of questions was guided by the research objectives outlined in section 3.3.3 of this thesis. In all, seven questions were included. The questions also introduced respondents to the format of the questionnaire (see Appendix).

- Economic factors of location.

The first three questions were included to determine the most important economic factors of location. The first question was: 'Was this city deliberately selected on the basis of an economic evaluation as the best location for your firm ?'. If the answer was affirmative a list of factors was provided for rating on a five point scale. The range of the scale was from 1, 'not at all important', to 5, 'very important'. Eleven economic factors of location were included on the list:

1. Low rent.
2. Proximity to clients.
3. Proximity to competition.
4. Proximity to suppliers.
5. Access to transport and communication systems.
6. Good profit making prospects.
7. Good labour relations.
8. Good potential for expansion.
9. Good prospects for the growth of the city's economy.
10. Access to highly skilled labour.
11. Good export potential.

The economic factors of location were included on the basis of the research reviewed in section 3.3.3 of this thesis. The third question asked the respondents to identify their first and second most important economic locational factors.

- Non-economic factors of location.

Two questions were included to determine the importance of non-economic factors of location. No filtering question was included, therefore, all respondents were asked to rate non-economic factors on the five point scale. They were:

1. Amenity of the environment.
2. The size of the city.
3. Personal preference.
4. Family ties in the city.
5. Local education.
6. Good connections to business community.
7. Good knowledge of the local market.
8. Prestige location.
9. No other alternative.

Again, respondents were asked to select the first and second most important factors, here non-economic .

- Images of the economic environment in Edmonton.

This section of the questionnaire was designed to determine how respondents evaluated the economic environment in Edmonton (see section 3.3.3). Two questions were included. The first question asked 'What was perceived that was **positive** about the city when the firm began (or moved to the city) ?'. The following list of answers was provided:

1. Quality of the environment.
2. Good economy and potential for growth.
3. Need for our service in the city and region.
4. Specific industries in the city.
5. Ties with other offices of this firm to the city.

6. Quality of city's workforce.
7. No perception.
8. Other.

The second question asked, 'What was perceived that was **negative** about the city ?'. Again, a list of answers was included. The possible answers were:

1. Small size of the local market.
2. Distance from other large cities.
3. Quality of the environment.
4. Lack of economic diversity.
5. Cyclical nature of the local economy.
6. Poor economic prospects for the city.
7. Poor tax structure/ high taxes.
8. Conservative business climate.
9. Parochial attitudes in the region.
10. Competition.
11. Nothing.
12. Other.

The respondents were asked to select as many answers from the list as they felt appropriate to their situation. From the combined frequencies of the two sets the respondents could be classified according to the similarities of their responses. Both positive and negative perceptions defined an 'image of the economic environment'. The resulting groups of firms were then cross tabulated with the ratings of the non-economic factors of location. The objective of this procedure was to determine the influence, if any, of the images on the ratings of the locational factors (see section 3.3.3).

5.5.3. **Input-output Linkages.**

The objective of this section of the questionnaire was to examine input-output linkages of the producer service firms in Edmonton (see section 3.3.2). Three types of input linkages were the focus. Inputs of producer services, inputs of labour, and inputs of goods and services other than producer services. The second part of this section was designed to examine output linkages of the producer service firms with their customers. An introductory note specified that all questions referred to the 1987 fiscal year.

- Input linkages.

In all, seven questions were included in this part of the questionnaire. The first question was 'Do you subcontract part of your business to other firms ?'. If the answer was affirmative, the respondents were asked to estimate the amount of money they spent on five categories of producer services: financial and legal, computer and engineering, management and marketing, equipment rental and transport, and other producer services not specified above. This total was to be divided between two groups of firms to which subcontracting was made, located in and outside Edmonton. Two identical tables were provided with three ranges of expenses: less than 10 per cent, between 11 and 50 per cent, and more than 50 per cent. The introductory note explained how the calculations should be made.

The next question sought the reasons for hiring non-local (outside

Edmonton) subcontractors by local producer service firms. The wording of the question was put in a conditional form to filter respondents who subcontracted outside Edmonton. The question was, 'If you hired subcontractors outside Edmonton how would you rate the importance of each of the following factors ?'. Ten reasons were included and a five point scale identical to the scale used in the previous section. The reasons were:

1. Necessary contacts as a part of exporting.
2. Competitive reasons.
3. Company/ Industry specific link.
4. Because of contacts within the firm.
5. Service not available locally.
6. Accessibility.
7. Competitive prices.
8. Reliability.
9. Communication costs.
10. Other.

A blank line was provided for specification of other reasons not included in the list.

Examination of inputs of labour was the aim of the next question. The question was, 'Have you hired new employees in the categories listed below in 1987 ?'. Eight specific categories of employees were included: managers and administrators, professionals, technicians, marketing-sales, labourers, craft workers, operatives including transport workers, and other service workers. Respondents were asked to mark the appropriate category on the list provided in a tabular form below the question.

Following the discussion of input linkages outlined earlier in this thesis (see section 3.3.2), two questions were designed to determine inputs of goods and other services to the producer service firms. Respondents were asked to estimate their total expenses in five categories: furniture and office supplies, computer hardware and software, printing services, trucks and cars, and other goods and services. They were then to allocate the total between inputs purchased in and outside Edmonton. Two identical tables were provided with three ranges of expenses. The ranges were the same as in the previous questions in this section.

- Output linkages.

The objective of this part of the questionnaire was to examine the output linkages of the producer service firms with their customers. Only one question was included. Respondents were asked to estimate the proportion of their total sales (local and non-local) made to each of the nine categories of customers (markets) specified in the table provided below the question. The nine categories were:

1. Agriculture, mining, oil and gas (the primary sector).
2. Manufacturing (the secondary sector).
3. Construction and transport.
4. Commerce.
5. Finance, insurance, and real estate.
6. Business services.
7. Government.
8. Individuals.

9. Other.

Three ranges of sales were provided: less than 10 per cent, between 11 and 50 per cent, and more than 50 per cent of the total sales. The question concluded the section of the questionnaire dealing with input-output linkages of producer service firms.

5.5.4 Export Sales of Producer Services.

The design of this section of the questionnaire was based on the research objectives outlined in section 3.3.1 of this thesis. The general objective was to estimate and examine local and export sales of producer services in Edmonton. In all, thirteen areas were included in this section. Each will be reviewed below.

- Geographic market strategy.

The objective of four questions included in this part was to compare past, present, and future geographic market strategies of producer service firms. The first question was, 'What was the firm's original geographic market strategy when it was founded or moved to the city ?'. Four possible answers were provided: concentration on the local market, concentration on the external market, both, and no geographic strategy when it was founded. Respondents were asked to choose only one answer.

The next question was the same as the previous one except that it referred to the present geographic market strategy of the firm. The third question asked respondents to estimate how their geographic market strategy will change over the next five years. Three possible answers were provided: will be more local, will be more non-local, and no change.

Finally, the last question asked respondents whether they have an employee(s) who is (are) exclusively responsible for marketing (yes or no).

- Distribution of sales by geographical markets and revenue estimate.

The objective of the one question here was to determine the distribution of sales to the geographical markets of the producer service firms. The question asked respondents to estimate in percentages the distribution of their sales between five geographical markets specified in a tabular form below the question. The five geographical markets were:

1. Edmonton.
2. Calgary.
3. Rest of Alberta.
4. Other provinces.
5. Outside Canada.

The two latter categories were provided with three blank lines to specify the province(s) and country(ies) to which sales were made. Five ranges of sales were specified in the table: less than 10 per cent, between 11 to 25 per cent, between 26 to 50 per cent, between 51 to 75 per cent, and more than 75 per cent of the total sales. Respondents were asked to mark the appropriate columns in the table. An introductory note defined the terms 'local market' (within Edmonton) and 'non-local or export market' (outside the city's limits not necessarily outside Alberta or Canada).

Finally, a statement was provided below the table asking respondents to specify in dollars the total value of their sales in 1987. The objective of this question was to estimate the value of export and local sales of the producer service firms.

The remaining eight questions were divided in two sections for 'exporting' and 'non-exporting' firms. Following the arbitrary definition of 'exporting' firm introduced by Beyers and Alvine (1985) a filtering question was included. In this question respondents were asked whether the proportion of the firm's sales outside Edmonton was greater than or equal to 10 per cent of the total sales.

-Export potential of 'exporting' firms.

The two questions included in this part of the questionnaire were designed to determine the future export potential of the 'exporting' producer service firms. The first question asked respondents to estimate any changes in the geographical distribution of the firm's sales in the last five years. Three answers were provided: more local, more non-local, and about the same. Respondents were asked to mark only one answer. A following question asked for an estimation of any expected change(s) in the geographical distribution of a firm's sales in the next five years. Three answers identical to the previous question, were provided.

- Reasons for selecting non-local markets.

The objective of this part of the questionnaire was to determine why 'exporting' firms selected non-local markets. Respondents were asked, 'Why did the firm develop its sales outside the city ?'. A list of seven reasons was provided:

1. Specialization/ Local market was not sufficient.
2. Regional office strategy.

3. Government contracts.
4. 'Desire' to develop export markets.
5. Networks with firms in other regions.
6. Opportunities.
7. No reason.

Respondents were asked to choose a maximum of three reasons from the above list. A similar procedure was used in the next question. The question asked, 'How did the firm get involved in non-local sales ?'. Respondents were to choose a maximum of three answers from the following list:

1. Began as exporter from contracts developed prior to the founding of the firm.
2. Initiated contacts with clients outside the region.
3. Used local contacts to develop external contacts.
4. Performed services for a local firm doing business outside the region.
5. Through acquisition of government contracts.
6. Other.

This question concluded the questionnaire for 'exporting' firms. The last three questions were designed specifically for 'non-exporting' firms.

- Reasons for selecting local market.

The objective of the next question was to determine reasons why 'non-exporting' firms focused on local markets. The question was, 'Why did you choose to focus on the local market ?'. Eight possible reasons were specified below the question. They were:

1. Specialization/ Insufficient export market potential.
2. Regional office strategy.
3. Local government contracts.
4. Competition.
5. Barriers to entry to other markets.
6. No specific reason.
7. Lower communication costs.
8. Other.

Respondents were then asked to choose a maximum of three reasons from the above list.

- Export potential of 'non-exporting' firms.

To determine the export potential of 'non-exporting' firms respondents were asked to estimate changes in the geographical distribution of a firm's sales in the last five years. As with the questions dealing with the export potential of 'exporting' firms, respondents were provided with three possible answers: more local, more non-local, and no change. The next question asked for an estimation of the expected change in the geographical distribution of sales in the next five years. The choices were identical to the previous question. In both questions, respondents were asked to choose one answer.

The last question was optional. It asked respondents to specify their job title, company's name and address. This concluded the content of the questionnaire.

5.6 Test of the Questionnaire.

An earlier version of the questionnaire was pre-tested. The test was conducted in the form of interviews with 15 producer service firms in Edmonton. Two firms in each service category were approached for an evaluation. Only one employment agency was interviewed. On the basis of this test numerous changes were made to the wording of some questions. Questions requesting statistical information had to be introduced by a detailed statement describing how the calculations were to be made. The length of the questionnaire had to be substantially reduced.

The initial version included 55 questions in all. However, respondents stated that it was too time-consuming. Six redesigned versions were prepared and evaluated. Finally, a version including 31 questions was adopted. This number of questions required less than the maximum amount of time (set to 20 to 25 minutes) to complete. Also the layout of the questionnaire was changed.

A pilot survey was implemented in November 1987. Fifty randomly selected offices were mailed a questionnaire, a covering letter, and a stamped return envelope. On the basis of this survey, the covering letter was revised and the wording of two questions was changed.

In order to further improve the design of the questionnaire and to elaborate on selected questions, a series of in-person interviews were conducted in December 1987. As alluded to earlier in the section discussing sampling procedure, 55 firms were approached for an interview. Over 80.0 per cent of the firms approached agreed to the half an hour interview. Interviews in 45 firms were conducted usually with executive presidents, partners, or market managers. The interviews led to a number of minor revisions in the wording of questions and the overall design of the questionnaire. It was suggested by the interviewees, that the questionnaire booklet should not be reduced to the smaller size which initially was envisaged as a way of reducing postage costs. As a result, the survey was conducted using full size (8.5 X 11.0 IN) questionnaire booklet, reprinted in the appendix of this thesis.

6. EXPORT SALES OF PRODUCER SERVICES.

6.1 Introduction.

The objective of this chapter is to analyze the export sales of producer service firms in Edmonton. The specific research objectives are listed in section 3.3.1 of this thesis. The first section of this chapter deals with the export revenue of the sector. Also the method used to estimate the monetary value of the export revenue is presented. Then, the geographical distribution of sales is examined in order to determine where Edmonton based firms sold their services. The next section of this chapter is designed to determine whether there are any large differences in the structural attributes of exporting firms.

In order to examine the export potential of the sector, geographic changes in sales in the last five years as well as the next five years, are analyzed. To evaluate the influence of a geographical market strategy on export sales, changes in export sales were cross tabulated with the two variables 'marketing employee' and 'geographic market strategy of the firm'. Finally, reasons for selecting a specific geographical market are examined.

6.2 Revenue of the Producer Service Sector in Edmonton.

Respondents were asked to estimate their total operating revenue in the fiscal year 1987. Table 6.1 presents the results for the selected producer service sub-sectors in Edmonton.

Two measures of sales were used. First, the volume of sales to nine geographic regions (Western Canada includes Manitoba, Saskatchewan, and

Table 6.1 Revenue of the Producer Service Sector in Edmonton by Geographical Markets in 1987.

	Value of sales (V)			Destination of sales (D)		V/D
Region	Sample[1] $'000	%	Estimate[2] $'000	Number of Transactions	%	$'000
Edmonton	140,792	63.7	1,519,026	160	32.4	853
Calgary	15,472	7.0	166,926	87	17.1	178
Alberta	44,647	20.2	481,700	129	25.3	346
Western Provinces	6,189	2.8	66,770	57	11.2	109
Central Canada	3,757	1.7	40,539	10	2.0	375
Northern Territories	3,094	1.4	33,385	19	3.7	163
USA	4,862	2.2	52,462	31	6.1	157
Western Europe	442	0.2	4,769	3	0.6	147
South East Asia	442	0.2	4,769	3	0.6	147
Other Countries	1,326	0.6	14,308	5	1.0	265
Total	221,024	100.0	2,384,657	509	100.0	434

Source: Survey of Edmonton 1988.

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[1] Estimate for 173 firms in the sample.

[2] Estimate for 1,676 firms in Edmonton.

British Columbia; Central Canada includes Ontario and Quebec; Northern Territories includes the Yukon). The volume of sales is expressed both as a value in dollars and as a percentage of sales to each region. The second measure was the destination of sales shown by the frequency of each region cited by respondents. This measure was used following the method of estimating service sales developed by Daniels (1984). A ratio of the volume of sales to destination of sales was calculated to examine the average volume of sales to each region.

The total revenue of the producer service sector in Edmonton was estimated on the basis of the sample. Establishments in the sample were divided into four groups according to the number of employees. The groups were: 1 to 5 employees, 6 to 10, 11 to 50, and 51 and more employees. The average revenue for each group in the sample was calculated and then multiplied by the total number of firms in each group in the universe of firms in Edmonton (see chapter four).

The total revenue of the sample of firms was estimated as 221 million dollars (Table 6.1). The revenue for the whole sector was 2,384 million dollars. This figure can be compared with other estimates of revenue available for 1986 from Statistics Canada (Statistics Canada, Cat.No. 61-205 and 61-206) and Alberta Bureau of Statistics (Alberta Retail and Service Trade Statistics, 1986) (Table 6.2). Due to different classificatory procedures used in these sources it was not possible to calculate the contribution to the Gross Domestic Product (GDP) of Alberta by the producer service sector as defined in this thesis. According to Statistics Canada, services, including community, business, and personal services, contributed 18.3 per cent, that is 10,275 million dollars, to

Table 6.2 Gross Domestic Product in Alberta at Market Prices in 1986.

Sector	GDP in $ ('000,000)	%
Agriculture	2,460	4.4
Forestry	122	0.2
Mining	9,608	17.1
Manufacturing	4,383	7.8
Construction	2,876	5.1
Transportation	4,108	7.3
Utilities	2,470	4.4
Trade	5,065	9.0
Finance	11,448	20.4
Services (1)	10,275	18.3
Public Administration	3,330	5.9
Total	56,145	99.9

Value of Retail and Service Trade in Alberta and Edmonton in 1986.

	Alberta	Edmonton
Value in $	21,275,000,000	6,880,000,000

(1) Services include community, personal, and business services.

Source: Statistics Canada, Cat.no.61-205 and 61-206.
Edmonton Economic Development Authority and Alberta Bureau of Statistics, Alberta Retail and Service Trade Statistics, 1986.

the Albertan GDP in 1986. The value of retail and service sector revenue in Edmonton was estimated by the Edmonton Economic Development Authority as 6,880 million dollars in 1986. The total revenue of the producer service sector was, therefore, approximately one third of the total value of retail and service revenue.

6.3 Geographic Distribution of Sales.

The principal export market for the producer service firms located in Edmonton was the 'rest of Alberta' (excluding Calgary) (Table 6.1). Over 20 per cent of sales were to the Albertan hinterland. The second most important market was Calgary which accounted for 7.0 per cent of the total sales. Thus, 90.9 per cent of sales were to customers located within the province of Alberta.

The largest markets outside Alberta were the Western Provinces, 2.8 per cent, the United States 2.2 per cent, Central Canada 1.7 per cent, Northern Territories 1.4 per cent, and all other destinations 1.0 per cent. Although the proportion of sales outside Alberta was small, 9.1 per cent, it represents a substantial value in monetary terms, estimated as 217 million dollars. This revenue when combined with the value of sales to Alberta, represents a contribution of over 865 million dollars to the local economy of Edmonton. This figure clearly demonstrates that producer service firms located in Edmonton exported a large proportion of their output outside the city.

The ratio of the sales volume to the destination of sales (V/D) shows the average value of contracts awarded to Edmonton based firms. By far the highest average value of contracts was from customers located in Edmonton (Table 6.1). The second highest average value of contracts was from customers in Central Canada, followed by the rest of Alberta, and other countries. The lowest average value of contracts was from customers in Western Europe, South-East Asia, the United States, Calgary, and Northern Territories. The United States, Calgary, Western Provinces, and Northern Territories were cited much more frequently than Western Europe and South-East Asia as destinations of output.

In summary, Edmonton based producer service firms exported in 1987 a large proportion of their output. Almost one third of their total revenue came from export markets located outside Edmonton. This finding is significant in that it clearly demonstrates that the producer service sector in Edmonton was involved in the intra- and interregional trade of services. It is worth noting that the estimates presented in this chapter can be considered conservative since they do not reflect intra-firm trade of producer services by head-offices of non-service firms (Coffey and Polese, 1987). Thus, in monetary terms, the contribution of this sector to the local economy was, most likely, even greater than reported here.

The producer service sector includes a range of very different firms. The major differences between these firms are described by their structural attributes. It can be expected that the individual export contribution of each firm will vary significantly (see section 3.3.3). These differences between exporting firms are examined in the next section.

6.4 **Structural Attributes of Exporting Firms.**

As alluded to in chapter three, several researchers noted regularities in the structural attributes of exporting firms. The following section examines the associations between export sales and three structural attributes of firms in the sample.

6.4.1 **Type of Service and Export Sales.**

The percentage of exporting firms in each sub-sector is presented in

Figure 6.1. Over three quarters of all surveyed firms, 75.4 per cent, had export sales equal to or exceeding 10 per cent of their revenue. There were large differences between the sub-sectors in terms of the number of exporting firms. Two groups of producer services can be determined. The first group includes sub-sectors with a high proportion of exporting firms. They are computer and data processing, engineering services, and architectural services. The second group includes sub-sectors with much fewer exporting firms. This group comprises legal services, accounting services, employment services, marketing and advertising services, and management and public relations consulting.

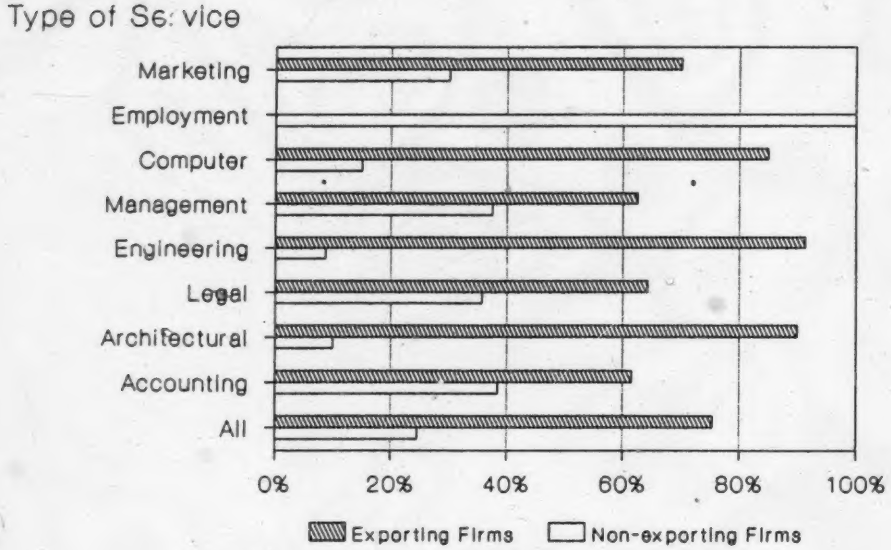
6.4.2. **Geographical Markets and Type of Service.**

There were large differences in the geographical markets of the exporting firms in each sub-sector. No clear regularities in markets could be determined (Table 6.3). Thus, each sub-sector is examined separately.

Almost half of the revenue, 43.7 per cent, of the marketing and advertising sub-sector came from export sales (Table 6.3). The largest share of this revenue came from the province of Alberta, 15.4 per cent, Central Canada, 13.8 per cent, and Calgary, 11.8 per cent. All other destinations played a minor role.

A large proportion of the revenue of the computer service sub-sector came from export sales, 46.9 per cent (Table 6.3). Again, Alberta contributed the largest proportion of the export sales, 13.2 per cent. However, the sub-sector also had large export sales beyond Alberta. Particularly worthy of note are the export sales to Central Canada, 5.9

Figure 6.1 Exporting and Non-exporting Firms by Type of Service.



Source: Survey of Edmonton, 1988.

Table 6.3 Geographical Markets and Type of Service.

(Revenues as % of the total)

Sub-sectors	Edmonton	Calgary	Rest of Alberta	Western Canada	Central Canada	Northern Territo.	USA	Western Europe	Sout-East Asia	Other Coun.	Total
Marketing	56.1	11.8	15.4	1.7	13.8	0.2	0.7	0.1	-	-	99.8
Employment	-	-	-	-	-	-	-	-	-	-	-
Computer	53.1	8.6	13.2	9.3	5.9	4.2	5.7	-	-	-	100.0
Management	50.5	16.2	25.1	4.1	0.1	0.1	4.0	-	-	-	100.1
Engineering	37.2	7.6	39.2	4.1	2.3	3.2	2.4	0.8	0.7	2.5	100.0
Legal	72.2	6.8	18.9	0.8	0.4	0.4	0.5	-	-	0.1	100.1
Architectural	55.9	10.8	25.7	1.7	-	1.9	4.0	-	-	-	100.0
Accounting	78.3	2.1	19.3	0.3	-	0.1	-	-	-	-	100.1
All	52.5	9.0	26.5	3.6	2.3	1.9	2.8	0.3	0.2	0.8	99.9

Source: Survey of Edmontcn 1988.

per cent of the total sales, and to the United States, 5.7 per cent. The sub-sector also had export linkages with the Northern Territories, 4.2 per cent. The data demonstrate that computer service firms located in Edmonton successfully expanded their markets in North America. This is an indication of the large export potential of these firms and, thus, their importance to the local economic base.

The management and public relations sub-sector had strong export sales, 49.5 per cent of its total sales (Table 6.3). As with the sub-sectors reviewed above, the largest proportion of the export revenue came from Alberta, 25.1 per cent. However, the second largest market for these services was in Calgary, 16.2 per cent. Notable are the export sales to the United States, 4.0 per cent.

The largest total export sales were reported by the engineering service sub-sector (Table 6.3). More than two thirds of the total revenue, 68.8 per cent, came from markets outside Edmonton. The largest sales were to Albertan customers, 39.2 per cent. The remainder came from other regions of Canada, the United States, Western Europe, South-east Asia, and 'other countries'. The value of the export sales as well as the geographical diversity of the engineering sub-sector's markets, indicate a large export potential for this type of service. The sub-sector, together with the computer service sub-sector, constitutes the core of the export oriented producer services in Edmonton.

In contrast to these sub-sectors, almost three quarters of the revenue in legal services came from the local market in Edmonton (Table 6.3). The only significant export sales were made to Alberta, 18.9 per cent, and Calgary, 6.9 per cent. Clearly, the sales of legal service firms are concentrated on the local market. Nevertheless, the relatively high sales of these services to Calgary indicates that not all legal services were sold locally. In other words, the sales of the legal services are less spatially constrained than suggested in earlier studies (p.27).

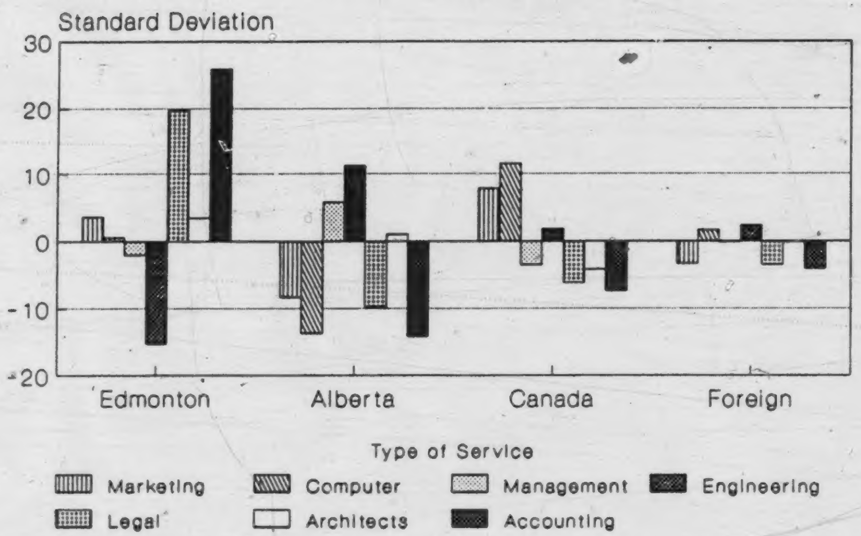
Architectural service firms sold almost half of their output outside Edmonton, 46.1 per cent. The largest export sales were made to Alberta, and Calgary (Table 6.3). The only significant market outside the province of Alberta was in the United States, 4.0 per cent of the total sales. Thus, the majority of export sales in this sub-sector were intra-provincial. However, sales to the United States suggest that architectural firms located in Edmonton are competitive internationally.

The volume and geographical distribution of export sales of the accounting sub-sector were very similar to those of legal services (Table 6.3). Over three quarters, 78.3 per cent, of the total sales were to firms in Edmonton. The only significant export sales were to Alberta, 19.3 per cent. There were no significant export sales to any other geographical region. The sub-sector appears limited in its ability to expand export sales.

The export sales of each sub-sector are presented in Figure 6.2. The export sales in percentages were converted into percentage deviations from the mean sales of the whole sector. The markets with the highest sales can be identified by a positive percentage deviation from the mean value of sales in all sub-sectors.

The results of this procedure show that local sales were the least important for the engineering and management service sub-sectors. As indicated earlier, the legal and accounting sub-sectors were the most

Figure 6.2 Export Sales of Producer Service Sub-sectors.



Source: Survey of Edmonton 1988.

dependent on the local market. The largest proportion of engineering and management services were sold to the Albertan hinterland. The computer and data processing service sub-sector had large export sales to the rest of the Canadian provinces. The largest foreign export sales were made by the engineering and computer service sub-sectors.

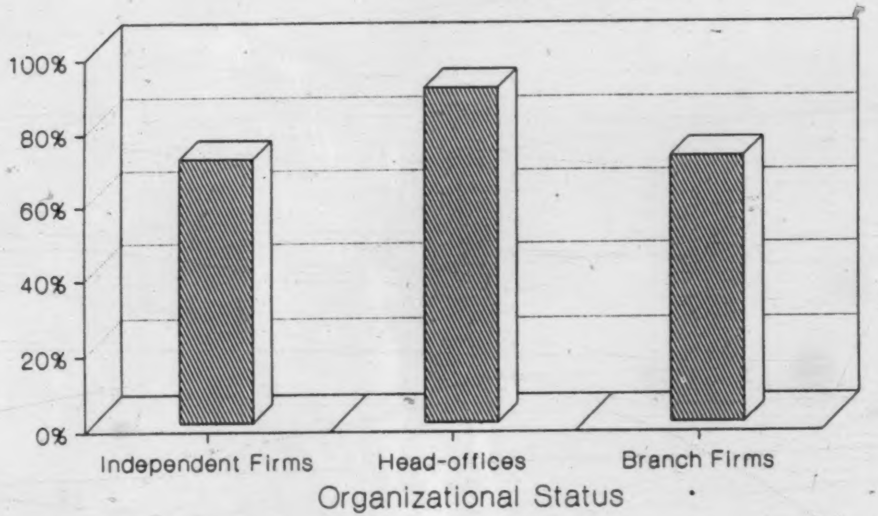
6.4.3 **Organizational Status and Export Sales.**

The export sales of exporting firms were cross tabulated with their organizational status. The results of this procedure are presented in Figure 6.3.

The category of head-offices had the highest proportion of exporting firms, 90 per cent or 36 firms. This finding is readily explained since head-offices are linked to their branch firms outside Edmonton. The principal function of the branch firms is to sell services outside the local market (i.e. Edmonton). A large proportion of the revenue generated by branch firms is channeled back to their head-offices in Edmonton (eg. Associated Engineering Alberta Ltd., EPEC Consulting Group, Delcan Deleuw Cather Western Ltd.). As a result the export component of head-offices is usually much higher than that of any other type of firm.

The second largest group of exporting firms were branch firms while independent firms (Figure 6.3), had the lowest proportion of exporting firms, 70.9 per cent. Although the difference between the proportion of exporting branch and independent firms was small, this finding is revealing. According to the case studies reviewed in chapter three (see section 3.3.1), branch firms are least likely to export producer services. No straightforward explanation can be proposed here. However,

Figure 6.3 Exporting Firms by Organizational Status.



Source: Survey of Edmonton, 1988.

in Edmonton a large number of independent firms provide legal and accounting services. As alluded to earlier, such firms usually do not sell their services beyond Edmonton. Thus, the category of independent firms includes a large number of non-exporting firms.

Over 70 per cent of branch firms had large export sales. In other words, contrary to conclusions based on case studies reviewed in section 3.3.1, branch firms in Edmonton were not tied to the local market. This is a significant finding. It refutes the conclusion proposed by Daniels (1984), that branch firms are selling principally on the local market. However, most of the revenue of these firms, including export revenue, leaves Edmonton through intra-firm channels. Therefore, it can be expected that branch firms do not reinvest much of their revenue in the local economy.

6.4.4 **Size of Firms and Export Sales.**

In this section the strength of the relationship between the employment size of the firms and export sales is examined.

First, a cross tabulation of exporting and non-exporting firms in five size classes was constructed (Table 6.4). Although there were minor differences in the number of exporting and non-exporting firms in each size class, no statistically significant associations were found. It was found that the largest proportion of exporting firms had offices employing between 6 to 10 workers. The smallest number of exporting firms were large firms employing between 51 to 250 employees. This suggests a reverse relationship between the size of firms and their exports.

To further clarify the relationship between the two variables, a

Table 6.4 Comparison of Exporting and Non-exporting Firms by Size of Firm.

Size	% of Exporting Firms	% of Non-exporting Firms	Number of Firms
1-5	72.9	27.1	87
6-10	82.1	17.9	28
11-25	78.8	21.2	33
26-50	80.0	20.2	10
51-250	70.0	30.0	10
All Firms	75.4	24.6	168(1)

(1) 5 cases missing.

Source: Survey of Edmonton 1988.

Table 6.5 Correlations Between Export Sales and Size of Firms.

Size of Firm	Pearson's Correlation Coefficient
1-5	.027
6-10	.067
11-50	- .044
51-250	- .021
Geographical Markets	
Total Exports	.027
Exports in Alberta	.067
Exports in Canada	- .044
Exports Abroad	- .021

Source: Survey of Edmonton 1988.

Pearson correlation coefficient was calculated. Two sets of data were utilized. The first set was grouped for number of employees and per cent of export revenue of each firm (Table 6.5). All correlation coefficients were very low and were statistically not significant. The second set comprised ungrouped data for the number of employees and the per cent of export sales to four markets: total exports, exports to Alberta, exports to Canada, and foreign exports (Table 6.5). Again, all correlation coefficients were not significant. Thus, there was no statistical relationship between the size of firm and its export sales.

Table 6.6 Regression Results for Export Sales and Size of Firm by Type of Service, and Organizational Status.

Sub-sectors	Pearson's Correlation Coefficient r	Adjusted Coefficient of r	Standardized Regression Coefficient Beta
Marketing	.2398	- .2567	- .2398
Computer	.3386	.0514	.3386
Management	.1048	- .0440	- .1048
Engineering	.8687	.7480*	.8687
Legal	.6496	.3256	.6496
Architects	.3808	.0793	.3808
Accounting	.8946	.7893*	.8946
Organizational Status			
Independent Firm	.4723	.7893*	.8946
Head Offices	.2974	.0581	.2974
Branch Firms	.0001	- .0526	- .0001

* Significant at p = 0.01

Source: Survey of Edmonton 1988.

Finally, the linear regression model was applied using the value of exports grouped into two broad categories. Exports for each sub-sector of the producer service sector were regressed first against size of firms (number of employees), and second, their organizational status (number of firms of each type). The results of the regression analyses are presented in Table 6.6.

In three out of ten cases the linear regression model fitted the data. The highest standardized regression coefficient (Beta) was for the accounting, auditing, and bookkeeping service sub-sector .8946, followed by engineering consulting .8687, and legal services .6496. In these three cases the linear regression model predicted well the expected values for exports on the basis of the independent variable, size of firm. Also there was a relatively good fit for independent firms, Beta .8946. The relationship between exports and independent firms in the accounting sub-sector and in legal services can be explained by a high proportion of non-exporting independent firms in these two sub-sectors. However, the good fit between engineering consulting firms and their export sales is difficult to explain. It can be suggested, that engineering consulting requires higher capital investment in equipment than do the other sub-sectors. Such investment can be justified only by substantial export orders and sales. Thus, larger engineering firms tend to have higher exports than smaller firms in the same sub-sector.

There were no significant associations between the remaining variables and exports. In short, there was no relationship between exports and the size of firms for the sector as a whole. However, there appear to be substantial differences at the level of individual sub-sectors.

6.5 Geographical Change of Export Sales.

The purpose of this section is to determine the export potential of producer service firms in Edmonton. To this end, respondents were asked to indicate changes in local and non-local sales over the past five years and the next five years (see section 5.5.4). Next, the differences in responses between exporting and non-exporting firms were analyzed.

Table 6.7 presents the results for exporting firms. Over 75 per cent of respondents had not experienced and did not expect, any significant geographical shifts in their sales. However, 70 per cent (30 firms) of those firms which had experienced a significant increase in export sales in the last five years, expected a continuation of this trend in the future.

Table 6.7 Cross Tabulation of Past and Future Geographical Change in Sales of Exporting Firms.

Past 5 Years	Will Be More Local	Next 5 Years Will Be More Non-local (N)	Will Be About the Same	Total
Were More Local	30.4 (7)	39.1 (9)	30.4 (7)	17.7 (23)
Were More Non-local	7.1 (3)	71.4 (30)	21.4 (9)	32.3 (42)
Were About the Same	6.2 (4)	18.5 (12)	75.4 (49)	50.0 (65)
Total	10.8 (14)	39.2 (51)	50.0 (65)	100.0 (130)

Source: Survey of Edmonton 1988.

Almost 40 per cent of the firms which had experienced a significant increase in local sales in the last five years, expected to increase their export sales in the next five years. Also 18.5 per cent of firms which had not experienced much change in the last five years, expected to increase their export sales in the future. The aggregate result of these changes will be a significant decline in the number of exporting firms which had increased local sales in the past and expected a continuation of this trend in the future. At the same time, there was a marked increase in the number of exporting firms which had increased their exports in the past, 32.2 per cent, and expected to increase exports in the next five years, 39.2 per cent. The number of firms which did not report any significant changes in the past and expected no changes in the future, remained constant at 50 per cent.

These data demonstrate that the majority of those producer service firms which already export their services, expect a further increase of their export sales in the future. Only 7.1 per cent of exporting firms that had increased their export sales in the past, expected an increase in their local sales rather than exports. Overall, over 50 per cent of all exporting firms either expected an increase of export sales in the future or had experienced such an increase in the past and forecasted a continuation of this trend in the future.

In contrast, over 80 per cent of non-exporting firms did not report any significant changes in their geographical distribution of sales and expected a continuation of this tendency in the future (Table 6.8). Also 42.9 per cent of non-exporting firms which had increased their local sales, expected a further increase in local sales. On the other hand, all non-exporting firms which reported an increase in export sales[1], expected an increase in such sales in the future. This finding indicates that there were two groups of non-exporting firms. The first group includes firms which expect a continuation of local sales in the next five years. The second group consists of firms which expect an increasing involvement in exporting in the future. The trend becomes evident by comparing the number of firms that increased export sales, 10.8 per cent, and firms that expected to increase them, 21.6 per cent. There was only a small decline, from 18.9 to 16.2 per cent, in the number of firms which already increased their local sales and expected a further increase in the future.

Table 6.8 Cross Tabulation of Past and Future Geographical Change in Sales of Non-exporting Firms.

		Next 5 Years		
Past 5 Years	Will Be More Local	Will Be More Non-local (N)	Will Be About the Same	Total
Were More Local	42.9 (3)	28.6 (2)	28.6 (2)	18.9 (7)
Were More Non-local	-	100.0 (4)	-	10.8 (4)
Were About the Same	11.5 (3)	7.7 (2)	80.8 (21)	70.3 (26)
Total	16.2 (6)	21.6 (8)	62.2 (23)	100.0 (37)

Source: Survey of Edmonton 1988.

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[1] Non-exporting firms exported less than 10 per cent of their total output.

It can be concluded that the majority of exporting producer service firms in Edmonton expect a similar level of export sales or a significant increase in the future. This finding indicates that a large number of producer service firms in Edmonton acquired expertise and marketing skills necessary to penetrate export markets. A continuation of this trend, in the long-term, will significantly change and diversify the economic base of Edmonton. As could be expected, only a small proportion of non-exporting firms experienced, in the past five years, a shift towards export markets. This situation is unlikely to change in the near future since most of these firms provide services (eg. accounting, auditing, legal services) to local customers only.

The structural attributes of exporting firms were cross tabulated with their geographical changes in sales. The purpose was to determine whether the firms which expected a further increase of export sales differed from less active firms. However, no statistically significant associations were found. These results show, that the geographical changes in sales were not related to the particular type of service, size of firm, and organizational status of firms.

6.6 **Marketing Strategies of Producer Service Firms.**

It has been suggested (Cannon, 1980, p.148), that a more careful market selection and consequent concentration on potential key markets can significantly increase the returns from export efforts. In many cases the success or failure of a small firm in expanding its markets contributes significantly to the overall performance of a producer service enterprise. As pointed out earlier in this chapter, over one third of the total revenue of the producer service sector in Edmonton originated from exports. Thus, it can be expected that a large number of exporting firms would have developed a comprehensive marketing strategy aimed at expanding or sustaining contacts with customers outside Edmonton. In order to evaluate this hypothesis respondents were asked about their past, present, and future geographical market strategies. Additionally, they were asked if a person in charge of marketing was employed.

Table 6.9 Geographical Market Strategy of Exporting and Non-exporting Firms.

	Exporting Firms		Non-exporting Firms	
	N	%	N	%
Past Market Strategy	129	100.0	42	100.0
Local	58	45.3	28	68.3
Export	7	5.5	1	2.4
Both	30	23.4	3	7.3
No Strategy	33	25.8	9	22.0
Present Market Strategy	129	100.0	42	100.0
Local	43	33.3	25	61.0
Export	9	7.0	1	2.4
Both	63	48.8	11	26.8
No Strategy	14	10.9	4	9.8
Future Market Strategy	129	100.0	42	100.0
Local	40	31.0	4	10.0
Export	10	7.8	7	17.5
No Change	79	61.2	29	72.5

Source: Survey of Edmonton 1988.

As shown in Table 6.9, there were large differences between strategies of exporting and non-exporting firms. Very few firms had a marketing strategy focusing entirely on export sales. Only a few more firms had such strategy at present.

There was a high proportion of exporting firms, 45.3 per cent, which, in the past, had a marketing strategy designed to increase local sales rather than export sales. This could be explained in the context of Cannon's description of passive exporting (Cannon, 1980). Passive exporters are characterized by an 'ad-hoc' approach to exports (see section 3.3.1). It is only over time that entrepreneurs of the smaller firms make an effort to increase exports in a planned way. This tendency is shown in the data as a decline in the proportion of firms which designed a marketing strategy to increase local sales, from 33.3 to 31.0 per cent. A large proportion of exporting firms, 48.8 per cent, and non-exporting firms, 26.8 per cent, had marketing strategies aimed at increasing export sales.

Over one quarter of exporting and non-exporting firms reported, that in the past they did not have any geographical market strategy. This proportion is significantly smaller at present. Only 10.9 per cent of exporting firms and 9.8 per cent of non-exporting firms have no geographical market strategy. This decline confirms the hypothesis that a comprehensive geographical market strategy is essential for the successful operation of a producer service firm.

The majority of firms, 80.5 per cent, did not have any employees specializing in marketing (Table 6.10). However, a much higher proportion of exporting firms had such employees, 29.7 per cent, than non-exporting firms, 19.5 per cent.

Table 6.10 Change in Sales of Exporting Firms by Marketing Employee.

Marketing Employee		Were More Local	Were More Non-local	Were About the Same	Total
		Change in the Distribution of Sales			
Yes	N	8	18	12	38
	%	21.2	47.4	31.6	29.9
No	N	14	23	52	89
	%	15.7	25.8	58.4	70.1
Total	N	22	41	64	127
	%	17.3	32.3	50.4	100.0
		Expected Change in the Distribution of Sales			
Yes	N	2	20	16	38
	%	5.3	52.6	42.1	29.7
No	N	11	31	48	90
	%	12.2	34.4	53.3	70.3
Total	N	13	51	64	128
	%	10.2	39.8	50.0	100.0

Source: Survey of Edmonton 1988.

There was also a relationship between an increase in export sales and the presence of a marketing employee. Almost half of the exporting firms which had a marketing employee, 47.4 per cent, increased their export sales. Also 52.6 per cent of exporting firms which had such an employee expected a large increase of exports in the next five years. A large proportion of firms, 31.6 per cent, which had a marketing employee, had

:ot experienced much change in sales, and 42.1 per cent did not expect any changes in the future.

There was a large decline in the number of exporting firms which, in the past five years, increased local sales rather than exports, 21.1 per cent, and were expecting a further increase in local sales in the future, 5.3 per cent.

In short, about half of the total number of exporting firms which had a marketing employee had either already increased export sales or were expecting to do so in the next five years.

6.7 **Reasons for Exporting.**

The objective of this section is to determine the reasons for selecting export markets by exporting firms and local markets by non-exporting firms (see section 5.5.4). Table 6.11 presents frequencies of responses for exporting firms.

Table 6.11 Reasons for Exporting.

	Exporting Firms	
	%	N
Opportunities	38.6	90
Local market was insufficient	24.9	58
Government contracts	14.6	34
Networks with firms	8.6	20
Desire to export	8.1	19
Regional office strategy	4.3	10
No reason	0.9	2
Total N	100.0	233

Source: Survey of Edmonton 1988.

The most frequently cited reason for exporting was 'opportunities', 38.6 per cent. This finding is consistent with Cannon's (1980) conclusion that producer service firms usually do not have any comprehensive marketing policy specifically designed to increase export sales. The majority of these firms are very small (fewer than 5 employees), and they lack time and other resources necessary for systematic monitoring of the markets and marketing their products.

Almost one quarter of exporting firms cited 'specialization because local market was insufficient' (Table 6.11), as the major reason for exporting producer services from Edmonton. This finding implies a certain maximum level of local sales beyond which the supply of producer services exceeds local demand. In Cannon's terminology, such firms could be classified as 'active' exporters because they develop a policy toward a specific export market. The third most frequently cited reason for exporting was 'government contracts'. This demonstrates the importance of government assistance in winning contracts outside the local market. In other words, a large proportion of export contracts is dependent on the purchases by the local (municipal and provincial) government which then transfers the contract to its branches outside Edmonton. Such assistance is particularly important for small firms that lack resources and expertise in dealing with customers outside Edmonton. Almost four fifths (Table 6.11), of exporting firms cited these three reasons as the most frequent rationale for exporting.

The reasons for exporting were cross tabulated with structural attributes of firms. All sub-sectors were similar and no important differences could be identified.

To examine whether there were any differences in the methods of exporting between firms of various types, respondents of exporting firms were also asked, 'How did the firm get involved in non-local sales ?'. The frequencies of the responses are listed in Table 6.12. The most frequent answer was, 'initialized contacts with clients outside the region'. This demonstrates that an active search for clients outside Edmonton was the most frequent way of finding a new market. Joint ventures with local firms already servicing export markets was the second most frequent answer (Table 6.12). Acquisition of government contracts was the third most frequent method. Finally, supplying services to other local firms which were exporting their services was the fourth most frequent method of exporting.

Table 6.12 The Most Frequent Methods of Exporting.

	%	N
Initiated contacts with clients outside the region	34.1	72
Used local contacts to develop external contacts	24.6	52
Through the acquisition of government contracts	13.7	29
Performed services for a local exporting firm	13.3	28
Other	7.6	16
Began as an exporter	6.7	14
Total	100.0	211

Source: Survey of Edmonton 1988.

The reasons for selecting the local market by non-exporting firms are listed in Table 6.13. The results are, to a degree, similar to the answers of the exporting firms. The most frequently cited rationale for selecting the local market was 'no specific reason'. As in the case of exporting firms, non-exporting firms did not have any specific geographic market strategy.

Table 6.13 Reasons for Local Market Sales.

	Non-exporting Firms %	N
No specific reason	26.1	12
Export market was insufficient	17.4	8
Government contracts	13.0	6
Other	10.9	5
Competition	10.7	5
Regional office strategy	8.7	4
Lower communication costs	8.7	4
Barriers to entry to other markets	4.3	2
Total N	100.0	46

Source: Survey of Edmonton 1988.

The second most frequent reason was, 'specialization because export market potential was not sufficient' (Table 6.13). This implies a deliberate evaluation of geographical markets in order to determine the potential sales. The third most frequent reason was 'government contracts'. This finding shows that both non-exporting and exporting firms relied heavily on government orders for their source of revenue. 'Other reasons' and 'competition outside Edmonton' were cited by only a few firms.

6.8 **Summary.**

In summary, Edmonton has a large and diversified producer service sector. A large number of firms in this sector export services beyond Edmonton. Over one third of the total revenue originates from export sales. It amounted to over 800 million dollars in 1987. The total value of producer services' sales was close to 2,400 million dollars. The principal market for producer services exported from Edmonton was the province of Alberta. Seven per cent of export sales were to Calgary. The largest sales outside Alberta were to the Western Provinces and the United States. These results confirm the hypothesis advanced in section 3.3.1 that producer services play a contributing role in the economies of medium sized peripheral cities. Contrary to conclusions proposed by Stanback and Noyelle (1982), Edmonton exports a large volume of producer services.

There were large differences in export sales between individual firms. The most frequently exported services were engineering, architectural, and computer services. Other types of producer services were exported but less frequently. Particularly low were the export sales of legal and accounting services. Head-offices were the most important exporters followed by branch and independent firms. Contrary to Daniel's (1984) results, branch firms were exporting a large proportion of their output beyond the local market. For the sector as a whole the size of the firms was not significant for the export sales. However, differences emerged between individual types of services. The engineering, accounting, and legal services sub-sectors' exports were related to the size of the firm.

The export revenue of the producer service sector in Edmonton will increase in the future. A large number of firms already exporting forecast a significant increase in export sales in the future. Moreover, over one fifth of non-exporting firms expect a significant geographical shift of their sales toward export markets although most will remain local in orientation. Although geographical market strategies helped firms to expand or increase their sales to markets outside Edmonton, only a few firms have such a strategy at present. The majority of firms attempted to increase their sales in and outside Edmonton simultaneously. However, managers of most firms indicated that they will develop such a strategy in the future.

Over one third of exporting firms develop their export sales as a result of opportunities rather than a planned effort. The insufficient size of the local market and governmental orders were two most frequently cited reasons for seeking customers outside Edmonton. The government's assistance in meeting export contracts was particularly important for small firms.

The results presented in this chapter demonstrate that in spite of the peripheral location of Edmonton, the producer service sector generates large export revenues. On the evidence presented here, the significance of this sector to the local economic base should increase in the future. In the next chapter, the linkages of the exporting firms with their customers and suppliers are examined. The purpose of this analysis is to determine whether there are any regularities in the input-output linkages of firms that export.

7. INPUT-OUTPUT LINKAGES OF PRODUCER SERVICE FIRMS.

7.1 Introduction.

This chapter focuses on the input-output linkages producer service firms have with other sectors of Edmonton's economy. There are two objectives to this analysis. The first objective is to determine who are the customers of the producer service firms in Edmonton. The second objective is to examine whether there are any differences in the input requirements of exporting producer service firms. The specific research objectives were outlined in section 3.3.2 of this thesis.

According to recent studies, reviewed in section 3.3.2, a large proportion of the demand for producer services originates from within the sector itself as well as from the public sector and the construction industry. Thus, the hypothesis here is that the growth of the sector may not be as dependent on the direct demand from the primary and secondary sectors as previously suggested (Stanback and Noyelle, 1982). To test this hypothesis, the output linkages of the producer service firms with their customers are examined in the first part of the chapter. A following section examines output linkages of the exporting sub-sectors. The objective is to determine whether the output linkages of the exporting sub-sectors differ from those of the non-exporting sub-sectors. The third section of the chapter focuses on the input linkages of the exporting firms. The objective is to determine what are the input requirements specific to the exporting firms. To achieve this objective, input linkages of the exporting firms are compared with those of the non-exporting firms. The reasons for hiring subcontractors from outside

Edmonton are examined also. The objective here is to identify the types of services and why they are imported by producer service firms located in Edmonton.

7.2 **Output Linkages of the Producer Service Sector.**

In this section, the major customers of the producer service sector are identified. The proportion of total sales made to each type of market was determined from the survey (see section 5.5.3). The results were aggregated. Table 7.1 shows the percentage of sales and an estimate of the sales value made to each market in the fiscal year 1987. The frequency of response is included.

Table 7.1 Output Linkages of Producer Service Firms in Edmonton.

Sector	%	Value $ ('000)	N
Primary	12.4	216,413	88
Manufacturing	4.6	80,282	75
Construction and Transport	10.4	181,508	87
Commerce	7.1	123,914	73
FIRE	7.7	134,386	75
Producer Services	15.7	274,007	87
Government	26.2	457,260	116
Final Consumers	11.8	205,942	100
Other	4.1	71,556	38
Total	100.0	1,745,527	739

Source: Survey of Edmonton 1988.

The most important customer of the producer service sector in Edmonton was the government (Table 7.1). Over one quarter of the whole output, estimated at close to half a billion dollars, was sold to the public sector. The second largest customer was the producer service sector itself. Over 15 per cent of the total output was purchased by producer service firms. This amounts to over one quarter of a billion dollars. The value of producer services sold to the primary sector was over 200 million dollars. Only marginally smaller was the value of the contracts with final consumers (individuals). Over 10 per cent of the total output was absorbed by the construction and transport sector (Table 7.1). These five markets purchased over three quarters, by value, of all producer services sold in Edmonton in 1987.

Thus, the data showed that the public sector and other service sectors purchased the bulk of producer services in Edmonton while the goods producing industries consumed relatively little of this output. The growth and future development of this sector in Edmonton depends on the level of demand from the government and from other service sectors. In other words, a manufacturing base is not a prerequisite for developing the producer service sector. The producer service sector can develop in response to demand from other sectors as well. In the case of Edmonton, the key source of demand is the government. However, there may be other sources, for example the high-technology industry, agribusiness, transportation, and service sectors (Daniels, 1985a). The data also support the hypothesis outlined in section 3.3.2, that producer service firms, as defined here, function as suppliers of intermediate inputs to other sectors of the economy. As such, they reduce imports of producer services from outside Edmonton by substituting local inputs of producer services. An example is the engineering sub-sector which provides local inputs of services to government, the construction industry, and primary producers of oil and gas products. Typically such inputs require substantial capital which is lost to the subcontractors outside Edmonton. Local producer service firms that provide such inputs to local firms reduce capital outflow and indirectly reduce the need for intermediate imports.

7.3 **Output Linkages of Exporting Sub-sectors.**

It can be expected that there will be large differences in the structure of the output linkages between exporting and non-exporting sub-sectors (see section 3.3.2). This section of the chapter identifies the major customers of the sub-sectors exporting a large proportion of their services from Edmonton. These sub-sectors were identified in section 6.4.1 of this thesis as engineering, computer, and architectural services. The exports of each will be discussed in turn.

The following observations can be made about Table 7.2. The engineering service sub-sector shows an exceptionally high degree of dependence on a narrow segment of the market, namely the government. Almost half of the output of this sub-sector was purchased by the government. The second largest source of demand for the engineering services was the primary sector, followed by the construction and transport sector. These three sub-sectors accounted for over 80 per cent of the total output of the engineering services. Such a high degree of dependence on a narrow segment of the market shows the importance of government contracts to the exporting sector of Edmonton's producer services.

The output linkages of the architectural service sub-sector were similar to those of the engineering service firms (Table 7.2). The most important customer was the government, followed by the construction and commerce sectors. These three sectors accounted for over 70 per cent of the total output produced by architectural firms. However, unlike the engineering service sub-sector, architectural firms had significant sales to final consumers (Table 7.2). The architectural sub-sector was less dependent on the government than were engineering firms. Nevertheless, almost one third of the total output was sold to the government. Thus,

Table 7.2 Output Linkages of Producer Service Sub-sectors.

(% of total sales)

Sector	Ma	Em	Co	Mg	En	Le	Ar	Ac	Total
Primary	15.4	15.1	16.8	6.5	21.4	2.3	3.8	10.4	12.4
Manufacturing	6.5	22.2	4.1	2.2	5.8	3.6	1.9	5.7	4.6
Construction and Transport	2.5	7.0	10.0	2.0	16.1	0.9	21.5	10.2	10.4
Commerce	4.9	7.0	9.7	3.2	2.5	9.1	16.7	11.1	7.1
FIRE	14.0	1.0	5.8	16.6	2.5	17.4	0.9	6.1	7.7
Producer Services	27.2	7.0	13.4	17.2	6.1	19.0	15.9	29.0	15.7
Government	17.0	7.3	30.5	21.7	42.8	7.7	32.6	7.8	26.2
Final Consumers	2.5	33.5	7.0	24.1	1.4	37.4	5.1	11.4	11.8
Other	10.0	-	2.8	6.5	1.5	2.7	1.7	8.4	4.1

Note: (Ma) Marketing Services, (Em) Employment Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Le) Legal Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

the government also plays an important role in the exports of this sub-sector.

The most important market for computer services was the government (Table 7.2). The second most important customer was the primary sector followed by firms within the sector itself. The strong linkage of this sub-sector to the government reflects the high demand by government institutions for specialized computer and data processing services. Firms involved in resource extraction and processing also showed a relatively high demand for computer services. The structure of the output linkages of the computer service firms shows that the government, the goods producing sectors, and producer services themselves were the major consumers of the producer services.

In contrast, the most important customers of the non-exporting sectors, for example management and legal services, were final consumers. Producer service firms were the most important customers for the marketing and accounting sub-sectors (Table 7.2). Employment service firms are underrepresented in the sample (see section 5.3), therefore, the results for this sub-sector are suggestive rather than representative. Over two thirds of their total output was purchased by final consumers. This indicates that the majority of firms in Edmonton did not use employment service firms in their staff hiring practices.

In conclusion, there were large differences between exporting and non-exporting firms in their output linkages. The major customer of exporting firms was the government while a relatively large proportion of the output of the non-exporting firms was sold to final consumers.

7.4 **Input Linkages of the Producer Service Firms.**

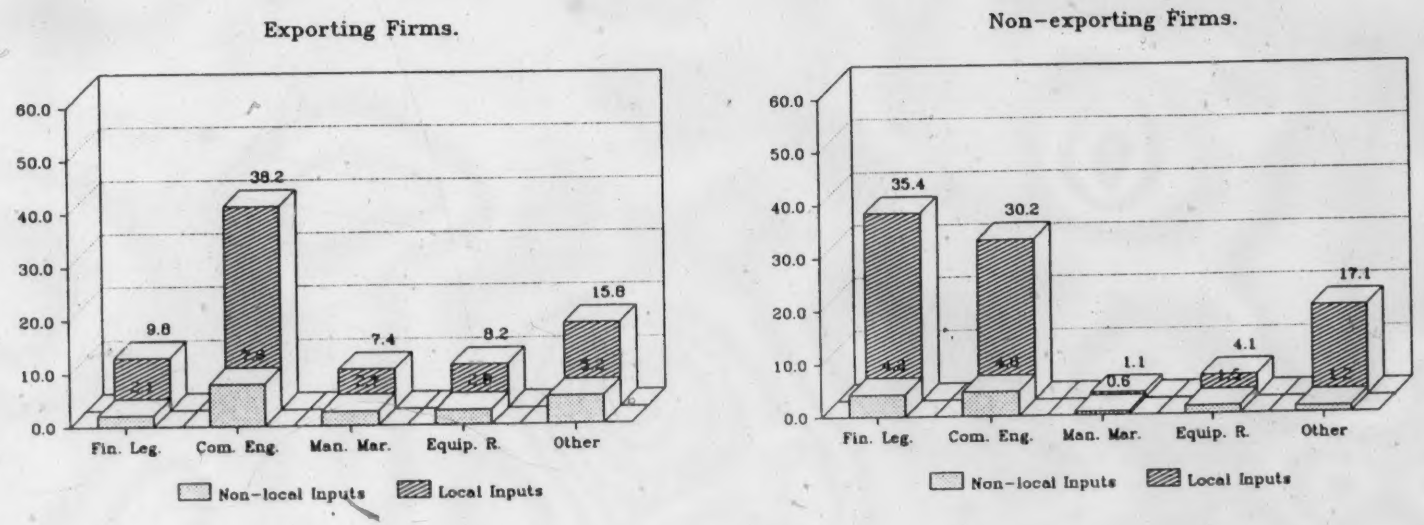
The major objective of the analysis of input linkages is to determine whether input requirements of exporting firms differ from the requirements of non-exporting firms. Three types of inputs were the focus, inputs of producer services, inputs of goods and services other than producer services, and inputs of labour. Local and non-local suppliers of goods and services were determined (see section 5.5.3). Each type of input will be discussed in turn.

7.4.1 **Inputs of Producer Services.**

Over half, 54.3 per cent, of the producer service firms in the sample did not report any inputs of producer services. The rest of the firms had extensive service inputs in 1987. Figure 7.1 shows the percentage distribution of inputs by type of service of these firms.

Exporting firms purchased over 20 per cent of all producer services from outside Edmonton compared to 12.1 per cent by non-exporting firms. The largest difference was in the category of the financial and legal services. Exporting firms purchased much less financial and legal services compared to non-exporting firms (Figure 7.1). The extensive input linkages of non-exporting firms with the local financial and legal service firms contributed to the significantly higher level of local service inputs (87.9 per cent - non-exporting firms, 79.4 per cent - exporting firms) for these firms. It is difficult to determine whether the lower inputs of financial services of exporting firms were caused by a lower demand for these services or lower availability of such services from the local banking and financial institutions. The latter explanation

Figure 7.1 Inputs of Producer Services for Exporting and Non-exporting Firms.



Source: Survey of Edmonton 1988.

is supported by the results of a survey of service firms in Alberta by Alberta Economic Development and Trade (1986). The survey found that local financial institutions considered export ventures of small producer service firms too risky. As a result, local banks and financial institutions were reluctant to back finance projects of a large segment of the local producer service sector. Consequently, exporting firms sought other forms of financing outside the local banking and financial institutions. According to the survey, the alternative financing was provided mainly by local government, venture capital, and joint projects with other firms outside Edmonton. The difficulties of local producer service firms in financing export ventures creates a serious barrier to expanding and increasing export sales of the sector.

Exporting firms had larger inputs of locally supplied computer, engineering, management, and marketing services, than non-exporting firms (Figure 7.1). These firms also purchased more producer services outside Edmonton. The largest importers of producer services, particularly computer services, were large head-offices. The smallest imports of producer services were made by branch firms employing between 25 to 50 employees. However, smaller firms employing fewer than 11 workers imported a similar volume of producer services irrespective of their organizational status.

The aggregated results indicate the reasons for purchasing producer services outside Edmonton. They are listed in Table 7.3 (see section 5.5.3). The highest mean score was 3.90, the lack of the 'reliability of subcontractor'. The reliability of subcontractors was rated high because of the significant rate of closure of firms in Edmonton (see p.63). Many firms turned to subcontractors outside Edmonton with established reputations and records of high quality services. The second most important reason was 'service not available locally'. It indicates that a niche exists in Edmonton in the producer services market which, to date, has been filled by subcontractors located outside the city. It also demonstrates that there is a room for expansion for entrepreneurs in this segment of the economy. Such a development of the local producer service base could considerably help other producer service firms expand their markets.

Table 7.3 Reasons for Hiring Non-local Subcontractors.

Reason	Mean Scores	Rank
Reliability	3.90	1
Service not available locally	3.84	2
Company/Industry specific link	3.49	3
Competitive prices	3.40	4
Accessibility	3.38	5
Contacts within the firm	3.28	6.5
Competitive reasons	3.28	6.5
Other	2.95	8
Communication costs	2.93	9
Necessary contacts as part of exporting	2.35	10

Source: Survey of Edmonton 1988.

The third reason for purchasing services outside Edmonton was 'company/industry specific link'. It demonstrates the importance of intra-firm linkages of branch firms with their head-offices. In some cases, branch firms located in Edmonton were unable to make decisions concerning purchases of producer services. The links between head-offices

Table 7.4 Subcontracting by Type of Service.

(% of the total spending)

	Ma	Em	Co	Mg	En	Le	Ar	Ac	Total
Local Contracts	85.7	-	74.5	81.3	81.0	83.4	84.2	-	81.3
Financial and Legal	22.4	-	2.7	29.5	12.9	52.0	6.2	-	15.6
Computer and Engineering	4.1	-	44.7	4.4	47.8	-	56.5	-	36.4
Management and Marketing	0.6	-	2.8	18.6	3.9	-	2.6	-	5.9
Equipment Rental and Transport	1.2	-	11.6	7.9	9.2	2.0	3.3	-	7.3
Other	57.4	-	12.7	20.9	7.2	29.4	15.6	-	16.1
Non-local Contracts	14.4	-	25.5	18.8	19.0	16.7	15.8	-	18.7
Financial and Legal	3.4	-	1.7	3.6	1.2	16.7	1.9	-	2.6
Computer and Engineering	0.6	-	6.9	3.3	9.5	-	9.3	-	7.1
Management and Marketing	3.4	-	1.1	7.1	0.4	-	1.9	-	2.2
Equipment Rental and Transport	-	-	4.7	-	3.9	-	2.3	-	2.5
Other	7.0	-	11.1	4.8	4.0	-	0.4	-	4.3

Note: (Ma) Marketing Services, (Em) Employment Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Le) Legal Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

and their branch firms are usually of the service input type.

The data presented in Table 7.4 show the input linkages of the sub-sectors. The producer service inputs varied significantly between the sub-sectors. The exporting sub-sectors, engineering, computer, and architectural services, had higher inputs of computer and engineering services than non-exporting sectors (Table 7.4). They had also much lower inputs of financial and legal services. The two exporting sub-sectors, engineering and computer services, purchased a large percentage of producer services outside Edmonton. However, architectural service firms purchased a lower share of their producer service inputs outside Edmonton than the other sub-sectors. Computer and engineering services were the major inputs imported by the exporting sub-sectors (Table 7.4).

There were large differences in the reasons for hiring non-local subcontractors by each sub-sector (Table 7.5). The most important reason for engineering firms to seek subcontractors outside Edmonton was that the service was not available locally. This was followed by 'reliability'. These reasons indicate that engineering firms which export their services had considerable difficulties in finding appropriate computer and engineering subcontractors in Edmonton.

The major reason for hiring subcontractors by computer firms was 'reliability' (Table 7.5). The term 'reliability' refers here to the good reputation and quality of the products provided by the subcontractors. According to the results of the survey, many local subcontractors were unreliable due to frequent foreclosures and poor quality of their products. This recurring rationale for importing producer services needs addressing by the economic development authorities in Edmonton and the

Table 7.5 Reasons for Hiring Non-local Subcontractors by Type of Service.

Reason	Mean Scores Ma	Em	Co	Mg	En	Le	Ar	Ac	Total
Reliability	4.00	-	4.50	3.86	3.96	3.50	3.29	-	3.90
Service not available locally	3.50	-	3.83	4.00	4.00	2.50	3.57	-	3.84
Company/Industry specific link	3.00	-	4.00	4.50	3.17	2.50	3.71	-	3.49
Competitive prices	4.00	-	3.50	3.43	3.58	2.00	2.86	-	3.40
Accessibility	3.00	-	3.67	2.80	3.67	3.50	2.57	-	3.38
Contacts within the firm	2.00	-	3.50	3.83	3.08	4.00	3.43	-	3.28
Competitive reasons	2.50	-	3.17	2.50	3.63	3.50	3.00	-	3.28
Other	5.00	-	3.00	1.00	2.88	3.00	4.00	-	2.95
Communication costs	1.00	-	3.33	3.20	2.83	3.50	2.86	-	2.93
Necessary contacts as part of exporting	1.00	-	2.33	1.71	2.54	2.50	2.71	-	2.35
N	2	-	6	7	24	2	7	-	48

Note: (Ma) Marketing Services, (Em) Employment Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Le) Legal Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

local Chamber of Commerce. This point is discussed in more detail in the summary of this chapter. The second rationale for subcontracting by computer service firms was 'company/industry specific link'. This is readily explained by referring back to section 4.5.2 of this thesis. The computer service sub-sector has the highest percentage of branch firms in Edmonton. Also, in section 6.4.3 it was established that branch firms exported a large proportion of their output. As a result, branches of computer service firms located in Edmonton which exported their services from Edmonton, imported a large proportion of their inputs. As such their contribution to the local economic base is reduced since non-local rather than local subcontractors are hired.

Architectural service firms imported only a small proportion of their inputs (Table 7.4). The major reasons for hiring non-local subcontractors were 'company/industry specific link' and 'other reasons' (Table 7.5). Although relatively few architectural firms are branches, there are extensive linkages between these firms. Offices of architects are usually organized as formally independent partnerships. Such organizational arrangements allow them to benefit from economies of scale whenever a need arises to aggregate resources. Such arrangements often involve firms in different cities. Thus, linkages between them are the major reason for subcontracting outside Edmonton.

7.4.2 Inputs of Goods and Other Services.

From Table 7.6 two observations can be made about the inputs of goods and other services to producer service firms. First, the majority of these inputs were supplied by local firms. Second, there were large differences between exporting sub-sectors in their input requirements (Table 7.7). Each of these observations is discussed in turn.

Table 7.6 shows the inputs of goods and other services of exporting and non-exporting firms. Over 80 per cent of these inputs came from Edmonton. Exporting firms, however, purchased a marginally higher percentage of goods and other services from outside Edmonton. The bulk of purchases, for both exporting and non-exporting firms, consisted of furniture, office supplies, computer hardware and software, and printing services. The largest percentage of inputs purchased outside Edmonton were computer hardware and software.

Table 7.6 Local and Non-local Inputs of Goods and Other Services for Exporting and Non-exporting Firms.

(% of total spending)

	Exporting Firms	Non-exporting Firms
Local Inputs	80.7	83.3
Furniture and Office Supplies	24.9	23.6
Hardware and Software	18.9	24.7
Printing Services	19.2	22.3
Trucks and Cars	7.9	8.0
Other	9.8	4.7
Non-local Inputs	19.3	16.7
Furniture and Office Supplies	3.0	4.1
Hardware and Software	6.8	6.2
Printing Services	3.2	4.0
Trucks and Cars	2.1	1.2
Other	4.2	1.2

Source: Survey of Edmonton 1988.

Table 7.7 Inputs of Goods and Other Services by Type of Service.

	Ma	Em	Co	Mg	En	Le	Ar	Ac	Total
Local Inputs	75.5	82.2	63.6	83.1	81.5	79.4	93.4	86.5	81.3
Furniture and Office Supplies	23.1	39.2	16.4	32.2	20.4	32.7	22.5	26.5	24.8
Hardware and Software	16.6	25.8	25.6	15.1	22.1	21.0	19.3	19.9	20.1
Printing Services	21.2	10.0	9.2	24.1	21.9	14.9	25.0	19.9	20.1
Trucks and Cars	11.9	7.2	7.2	6.6	7.8	3.5	9.5	9.3	7.8
Other	2.7	-	5.2	5.1	9.3	7.3	17.1	10.9	8.5
Non-local Inputs	24.5	17.8	36.4	16.9	18.5	20.6	6.6	13.5	18.7
Furniture and Office Supplies	3.5	9.8	3.1	5.6	2.1	4.6	0.7	3.3	3.3
Hardware and Software	2.7	2.8	22.0	3.4	6.5	6.7	3.1	4.0	6.7
Printing Services	9.1	4.0	4.2	4.8	2.1	3.3	0.7	3.2	3.4
Trucks and Cars	1.2	1.2	1.1	1.4	2.2	4.0	1.7	1.5	1.8
Other	8.0	-	6.0	1.7	5.6	2.0	0.4	1.5	3.5

Note: (Ma) Marketing Services, (Em) Employment Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Le) Legal Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

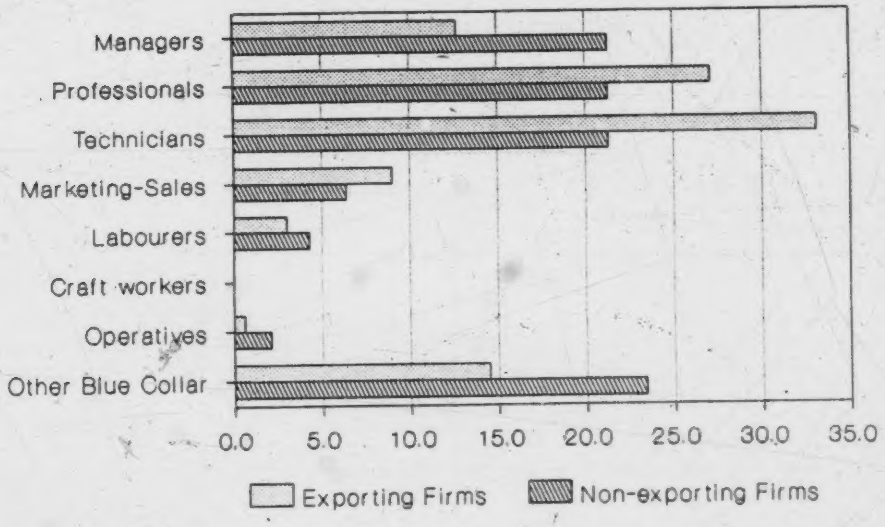
The computer service sub-sector purchased over one third of its goods and other service requirements from outside Edmonton. The largest imports were computer hardware and software. These reached 22 per cent of the total inputs. Engineering firms imported a much lower percentage of their inputs, 18.5 per cent. Again, the largest share of these purchases consisted of computer hardware and software (Table 7.7). Architectural service firms obtained over 90 per cent of goods and other services from Edmonton. This was the highest level of locally purchased inputs of all sub-sectors.

7.4.3 **Inputs of Labour.**

The last category of inputs examined here is inputs of labour. Respondents were asked to indicate what type of employees they hired on a full time basis during 1987. Figure 7.2 shows the frequencies of their responses.

It is evident from these data that the most frequent labour inputs were professional and technical employees. There were, however, large differences in these inputs between the exporting and non-exporting firms. Over 60 per cent of all new employees hired by exporting firms were technicians and professionals compared with about 40 per cent hired by non-exporting firms. Exporting firms hired fewer managers than non-exporting firms. Marketing and sales employees were hired more frequently by exporting firms. This finding reflects a tendency for exporting firms to internalise marketing and advertising services. Those producer service firms that frequently export their services require marketing and advertising expertise much more frequently than firms that do not export.

Figure 7.2 Labour Inputs: Percent of New Employees by Occupation for Exporting and Non-exporting Firms.



Source: Survey of Edmonton, 1988.

As a result, it is cheaper to hire marketing and advertising staff permanently.

As could be expected, both exporting and non-exporting firms hired relatively few blue-collar workers. However, non-exporting firms hired twice as many such workers as exporting firms. This finding demonstrates that the bulk of producer services exported from Edmonton required highly trained professionals. Their inputs are thus embodied in the output of producer service firms. The data reviewed here indicate that exporting firms require substantially higher inputs of highly trained and specialized labour than non-exporting firms. Examples of such inputs include computer aided design, data processing and analysis, survey research, laboratory testing, and other forms of specialized knowledge.

7.5 **Summary.**

Over one quarter of all producer services were purchased by the provincial and municipal governments. The increase in subcontracting is due to the recent efforts of these governments to reduce public sector employment (Government of Alberta, 1984). The main areas of subcontracting are engineering, computer, and architectural services. The second largest sales of producer services were to the producer service sector itself. These results show that the growth of producer services in Edmonton was not primarily associated with the direct demand from the primary and manufacturing sectors. The growth was due to the intermediate demand for these services by the government, and to linkages to the producer service sector itself. Although sales to the primary and manufacturing sectors were significant they were comparatively less important than the demand for producer services by other sectors.

In contrast, the output linkages of the non-exporting firms were mostly with final consumers and with the producer service sector. Government contracts were far less important for non-exporting firms than for exporting firms. This leads to the conclusion that exports of producer services from Edmonton depend largely on the demand by the provincial and municipal governments. The government sector is the major subcontractor of producer services which are then distributed through governmental channels outside Edmonton. This finding has important policy implications. The growth and diversification of Edmonton's producer service sector depend on the active involvement of governmental institutions. Thus, if the objective of the regional economic development policy was to increase the export of producer services, these institutions should address financial and marketing needs and input requirements of exporting producer service firms.

More than half of all producer service firms in Edmonton obtained necessary producer services 'in-house'. No purchases were made from other firms. The rest of the firms have wide input linkages with other sectors of the economy. Over 80 per cent of all inputs of the producer services, goods and other services, were purchased from producer service firms located in Edmonton. However, exporting firms bought a substantially higher proportion of producer services from outside Edmonton. The bulk of these imports were engineering and computer services, and computer hardware and software. The principal reason for these imports was the unreliability of the local subcontractors. Firms in each exporting subsector indicated that the unreliability of local suppliers was the major problem for them. The high rate of closure of producer service firms in Edmonton should become an area for concern for local economic development organizations and the Chamber of Commerce. An improvement in the reliability and product quality of local firms, particularly computer software services, could be achieved through the establishment of industrial parks subsidized by the government. The objective of such assistance should be the provision of reliable high quality computer services. Such investment will likely expand the export potential of locally operated producer service firms. The second reason for importing producer services is the lack of some specialized services in Edmonton.

There were no other regularities in the input requirements of exporting firms. Inputs of goods and other services were specific to each subsector. Although the majority of input requirements was satisfied locally, again exporting firms had a higher proportion of imports of goods and other services than non-exporting firms.

There were large differences in the labour inputs between exporting and non-exporting firms. The knowledge-intensive occupations, such as technicians and professionals, constitute 60 per cent of all labour inputs of exporting firms. In contrast, non-exporting firms hired twice as many blue-collar employees as exporting firms.

In the next chapter, the factors in the location of producer services in Edmonton are investigated. The objective of this investigation is to determine what factors of location are important to exporting firms. These factors have important policy implications for the development of Edmonton's producer service sector.

8. FACTORS IN THE LOCATION OF PRODUCER SERVICES.

8.1 Introduction.

The objective of this chapter is to identify factors which are important to the location of producer service firms which export. The analysis here is in the aggregate. No inferences are made about the factors in the location of individual firms. The purpose of this analysis is to determine the average ratings of locational factors as rated by all firms which export their services from Edmonton. The specific objectives and research design of this chapter are outlined in section 3.3.3 and 3.4 of this thesis.

Regional inequality of producer services has proved difficult to explain by deductive models derived from classical location theory. The actual location of producer services does not follow the simple hierarchical order implicit in such models. The behavioural approach adopted in this chapter offers a complementary framework (see section 3.3.3).

In the first section of this chapter, two types of locational factors are examined. They are the objective assessments of the traditional economic factors and subjective judgements held by individuals involved in the location decision. Since most of the producer service firms in Edmonton are small, the individual preferences of the key decision-makers in such firms are likely to be very important in the choice of location (Beyers and Alvine, 1985). The second section of the chapter examines the relationship between these perceptions and the factors used to locate in the city.

8.2 Economic Factors in the Location of Producer Service Firms.

A filtering question asked whether Edmonton was deliberately selected on the basis of an economic evaluation (see section 5.5.2). This question was included in the survey to filter out only those respondents who explicitly considered economic factors. Almost two thirds of the respondents in the sample indicated that they did not undertake such an evaluation prior to the location decision. The following section examines only the responses of 63 firms which considered economic factors. All percentages used in this section refer to this sub-sample as 100 per cent.

Table 8.1 Mean Scores of Economic Factors of Location.

Economic Factors of Location	Mean Score	N	Rank
Low rent	2.90	58	7
Proximity to clients	4.12	60	1
Proximity to competition	2.26	61	9
Proximity to suppliers	2.08	60	10
Access to transport and communication	2.98	60	5
Good profit making prospects	3.87	62	2
Good labour relations	2.72	61	8
Good potential for expansion	3.76	63	3
Good prospects for the growth of city's economy	3.71	61	4
Access to highly skilled labour	2.95	63	6
Good export prospects	2.03	62	11

Source: Survey of Edmonton 1988.

Eleven economic statements on location were listed in the questionnaire (see p.85). The mean scores of these factors are presented in Table 8.1.

Four statements were regarded as important by the majority of respondents. They were: 'proximity to clients', 'good profit making prospects', 'good potential for expansion', and 'good prospects for the growth of city's economy'. All of these statements correspond to market pull factors in the formal neo-classical models of location (Chapman and Walker, 1988).

The majority, over 60 per cent, of these respondents considered three factors as not important. They were: 'good export prospects', 'proximity to suppliers', and 'proximity to competition'. The low mean score on 'good export prospects' shows that the location decision of producer service firms was based on an evaluation of the local rather than export market. Proximity to suppliers and competition were not considered important. The mean scores on the remaining statements were difficult to interpret because there were an almost equal number of high and low ratings. For example, 'access to transport and communication systems' was rated as important by 48.8 per cent of the respondents who rated economic factors and by 36.7 per cent as not important.

An ensuing question asked which of the factors were considered most important and second most important. It was necessary to 'force' a rating of the factors in this manner because of the probability that the respondents might rate all or most of the factors as 'very' or 'somewhat important'. Almost half of the respondents rated 'proximity to clients' as the most important economic factor. This factor was equally important for exporting and non-exporting firms. Two other factors, 'good profit making prospects' and 'good potential for expansion', were cited together by 31.6 per cent of the respondents. Thus, 80 per cent of the respondents rated one of the three factors as the first most important economic factor.

The second most important factors were 'good profit making prospects', 17.5 per cent, 'good potential for expansion', 17.5 per cent, and proximity to clients', 14.0 per cent. This indicates that almost half of the respondents who considered economic factors chose one of these three factors as the first or the second most important factor in the location of their firm.

In conclusion, only one third of all respondents considered economic factors in their location decision. Two thirds of these respondents rated Edmonton as the city with a sufficiently large local market. The city offered to them good profit making and growth prospects.

8.2.1 **Economic Factors in the Location of Exporting Firms.**

There were too few responses from the employment and legal service sub-sectors to cross tabulate the results with ratings on the economic factors. All other sub-sectors returned sufficient number of questionnaires to calculate the mean scores on each factor. The results are presented in Table 8.2.

The computer and engineering service firms rated economic factors similarly. The computer service firms rated 'proximity to clients' as the most important economic factor in their location decision. The second highest mean score was 'good potential for expansion' (Table 8.2). This finding demonstrates that computer service firms located their offices in Edmonton because of the growing demand for their type of services in the city. 'Good profit making prospects' was also rated highly among the most

Table 8.2 Mean Scores of Economic Factors of Location by Type of Service.

Economic Factors of Location	Mean Scores Ma	Co	Mg	En	Ar	Ac
Low rent	2.25	3.00	2.73	2.94	2.63	3.50
Proximity to clients	4.17	4.14	3.55	4.18	4.13	4.50
Proximity to competition	2.17	1.86	2.55	2.24	1.67	2.75
Proximity to suppliers	3.50	1.71	1.90	2.18	1.89	1.75
Access to transport and communication	3.00	3.00	2.73	2.82	2.67	3.50
Good profit making prospects	3.33	3.29	4.33	3.76	3.56	4.75
Good labour relations	1.83	2.14	2.82	2.88	2.78	3.50
Good potential for expansion	3.33	3.57	3.92	3.53	3.78	4.38
Good prospects for the growth of city's economy	4.00	2.43	4.38	3.24	4.50	4.13
Access to highly skilled labour	2.33	2.14	3.23	3.18	3.33	3.00
Good export prospects	2.67	1.71	1.67	2.41	2.00	1.75

Note: (Ma) Marketing Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

important economic factors. All other factors were not significant in the location decision (Table 8.2).

The mean scores of the engineering service firms were almost the same as the computer service firms (Table 8.2). The highest three scores were on the same factors, although 'good profit making prospects' was rated higher. The firms in the architectural services sub-sector rated the factors differently. The highest score was 'good prospects for growth of the city's economy'. The second highest score was 'proximity to clients' followed by 'good potential for expansion'.

All exporting firms rated 'proximity to clients' and 'good potential for expansion' as very important in selecting their locations. On average, 'good export prospects' scored very low. Thus exporting is not an important economic factor for firms locating in Edmonton. This is a significant finding in that it shows that new firms locate in Edmonton because of the size of the local market. The export component emerges only after the new firm is established on the local market. This demonstrates the difficulties in designing a policy aimed at increasing export sales of the producer service sector in Edmonton. The major motive of the local producer service firms seems to be to increase local sales rather than export sales.

Table 8.3 presents the mean scores on [illegible] economic factors for exporting and non-exporting firms. The major difference between the two ratings is in one factor. 'Good profit making prospects' was the most important economic factor for non-exporting firms. 'Good prospects for the growth of city's economy' was less important for non-exporting firms than for the exporting ones. The highest mean score for exporting firms was on 'proximity to clients'. These data demonstrate that profit making was a major locational consideration for non-exporting firms. Although

Table 8.3 Mean Scores of Economic Factors of Location for Exporting and Non-exporting Firms.

Economic Factors of Location	Mean Scores Exporting Firms	Non-exporting Firms
Low rent	2.84	3.07
Proximity to clients	4.15	4.00
Proximity to competition	2.30	2.14
Proximity to suppliers	2.17	1.77
Access to transport and communication	2.93	3.14
Good profit making prospects	3.72	4.33
Good labour relations	2.76	2.60
Good potential for expansion	3.73	3.87
Good prospects for the growth of city's economy	3.74	3.60
Access to highly skilled labour	3.04	2.67
Good export prospects	2.11	1.80

Source: Survey of Edmonton 1988.

exporting firms rated this factor highly, three other factors were more important (Table 8.3). The apparent lack of concern about a broader economic context is perhaps the major reason for low exports of services by many producer service firms.

8.3 Non-economic Factors in the Location of Producer Service Firms.

Nine non-economic statements on location were included in the questionnaire (see section 5.5.2). The mean scores on the non-economic factors are presented in Table 8.4.

Five factors were rated as important in the location decision. The highest mean score had 'good connections to the business community', followed by 'good knowledge of the local market', 'personal preference', 'size of the city', and 'family ties in the city'. All other factors were not important (Table 8.4).

Table 8.4 Mean Scores of Non-economic Factors of Location.

Non-economic Factors of Location	Mean Scores	N	Rank
Amenity of the environment in the city	2.97	166	6
The size of the city	3.46	166	4
Personal preference	3.80	166	3
Family ties in the city	3.30	166	5
Local education	2.81	166	7
Good connections to business community	4.12	166	1
Good knowledge of the local market	4.02	166	2
Prestige location	2.56	166	8
No other alternative	2.25	166	9

Source: Survey of Edmonton 1988.

These scores suggest that in the average opinion of the respondents a successful producer service firm in Edmonton required a very good knowledge of the local market coupled with a network of personal contacts in the public and private business community. This finding supports the conclusion reached by other researchers that the producer service sector depends, to a large degree, on personal face-to-face contacts (see section 3.3.3). Moreover, two factors, 'personal preference' and 'family ties in the city', indicate the significance of subjective factors in the locational decision. In this sense, producer services are 'footloose' because their locational requirements can be met by a number of alternative locations. The perception of the city's environment, as well as factors personal to a decision-maker, play an important role in this decision.

8.3.1 **Non-economic Factors in the Location of Exporting Firms.**

Apart from employment service firms all other sub-sectors returned enough questionnaires to compute statistics. The mean scores on the non-economic factors grouped by type of service are presented in Table 8.5.

The non-economic factors were rated similarly by all firms. 'Good connections to business community' and 'good knowledge of the local market' were the most important factors for all firms except the legal and accounting services (Table 8.5). 'Personal preference' and 'family ties in the city' played, on average, a more important role for these firms than any other factor.

Computer and data processing firms rated 'good connections to business community' and 'good knowledge of the local market' as the most important locational factors (Table 8.5). The other two important factors were 'personal preference' and 'size of the city'.

The factor the engineering service firms considered the most important was 'good knowledge of the local market'. This was followed by 'good connections to business community', 'personal preference', and 'family ties in the city'. The most important factor for architectural service firms was, again, 'good connections to business community'. This was,

Table 8.5 Mean Scores of Non-economic Factors of Location by Type of Service.

Non-economic Factors of Location	Mean Scores Ma	Co	Mg	En	Le	Ar	Ac
Amenity of the environment in the city	2.70	2.79	3.13	3.00	3.79	2.90	2.65
The size of the city	3.13	3.56	3.63	3.27	3.93	3.95	2.83
Personal preference	3.10	3.61	3.65	3.98	4.43	3.45	4.09
Family ties in the city	3.62	2.78	3.30	3.47	4.07	3.20	3.33
Local education	2.63	2.53	2.70	2.80	3.64	2.75	2.78
Good connections to business community	4.00	3.94	4.42	4.09	4.07	4.15	4.04
Good knowledge of the local market	3.75	3.89	4.13	4.20	4.14	3.90	3.74
Prestige location	2.90	2.37	2.81	2.29	3.29	2.25	2.52
No other alternative	2.00	2.39	2.23	2.42	2.14	1.89	2.30

Note: (Ma) Marketing Services, (Co) Computer Services, (Mg) Management Services, (En) Engineering Services, (Le) Legal Services, (Ar) Architectural Services, (Ac) Accounting Services.

Source: Survey of Edmonton 1988.

followed by 'size of the city', 'good knowledge of the local market', and 'personal preference'.

There were no important differences in the ratings of the non-economic factors between exporting and non-exporting firms. In other words, the choice of location is not affected by the export orientation of the firms. This finding is consistent with the earlier observation (see section 8.2.1) that exporting is not a significant factor in locating producer services.

8.4 Perceptions of the Economic Environment in Edmonton.

The purpose of this section is to determine the images of the economic environment of Edmonton held by the respondents. The location decision is subject to some objective inputs and assessments referred to in this thesis as economic factors of location. While the importance of these objective inputs is not to be underestimated, the location decision also involves many subjective judgments (Persson, 1979; Daniels, 1984)[1]. These arise, for example, from traits of the individual, their evaluation of the environmental attributes of possible locations and the quality of amenities in the vicinity, the prospects of good labour relations at one location rather than another, or factors personal to the individual making the location decision. Objective analysis of economic factors may indicate several equally adequate locations, thus leaving the final decision to subjective assessments of, for example, the relative environmental attributes of the alternatives.

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[1] Almost 100 per cent of the respondents included in the survey indicated that they considered non-economic factors of location while only one third considered economic factors.

There is a growing recognition in the field of producer services research of the value of behavioral research (see section 3.3.3). The success of this research will depend on a thorough understanding of individual decision-making by groups of individuals within an organization, and of the decision-making process in organizations themselves. The link between environmental images and choice of location is not easy to measure and remains a matter for considerable speculation. There is no attempt in this thesis to solve these problems.

The image of the economic environment is measured here on the basis of two lists of statements (see section 5.5.2). The first set, 'positive perceptions', is a list of favorable economic conditions. These statements were determined on the basis of previous research as having a positive influence on the producer service firms. The 'negative perceptions', which comprise the second list of statements, are economic conditions which have a negative impact on the new firm. Respondents were asked to choose statements most closely corresponding to their images of the economic conditions and environment which they held prior to their decision to locate a firm in the city.

An important limitation of this method is that all respondents, in fact, already had made their decisions. Thus, it can be assumed that their positive perceptions of the economic conditions in Edmonton outweighed the negative ones. In order, at least partly, to overcome this problem an introductory statement was included in the questionnaire which explicitly stated that the ensuing question refers to perceptions prior to making the decision (see section 5.4.2). Nevertheless such a provision was not entirely satisfactory. The combined positive and negative perceptions of all respondents form an aggregate image of the economic environment in Edmonton.

Frequencies of the positive perceptions of the economic environment are shown in Table 8.6. Two statements were cited most frequently 'good economy and potential for growth', 71.4 per cent, and 'need for our service in the city', 67.9 per cent. The third most frequently cited statement was 'quality of the environment, 20.2 per cent. Frequencies of all other perceptions were low (Table 8.6).

Table 8.6 Frequency of Positive Perceptions.

Positive Perceptions	%	N
Quality of the environment	20.2	34
Good economy and potential for growth	71.4	120
Need for our service in the city	67.9	114
Specific industries in the city	11.3	19
Ties with other offices	13.7	23
Quality of city's workforce	3.6	6
No perception	6.5	11
Other	6.5	11
Total		168

Source: Survey of Edmonton 1988.

The range of positive perceptions was between one and five (Table 8.7). Most of the respondents cited either one, 30.9 per cent, or two perceptions, 44.6 per cent. In other words, more than 75 per cent of the whole sample cited no more than two perceptions. The majority of them were managers of independent firms employing fewer than 11 workers.

Larger firms, employing more than 10 workers, cited more perceptions than small firms. 'Ties with other offices' and 'specific industries in the city' were cited more frequently by large firms. Also branch firms cited more perceptions than any other type of firm. 'Ties with other offices' was cited more frequently by these firms. In all cases, 'good economy and potential for growth' and 'need for our service' were the most frequently cited statements. Nine respondents, the majority of them accounting firms, indicated that they had no perceptions at all. All of these firms employed fewer than 6 workers. All other statements were cited by a very small number of respondents.

Table 8.7 Range of Positive Perceptions.

	Range (N)				
Positive Perceptions	1	2	3	4	5
Quality of the environment	1	9	18	3	3
Good economy and potential for growth	15	66	29	7	3
Need for our service in the city	16	61	27	7	3
Specific industries in the city	3	4	5	5	2
Ties with other offices	2	8	9	3	1
Quality of city's workforce	-	-	3	1	2
No perception	9	2	-	-	-
Other	6	-	2	2	1
Number of Respondents N	52	75	31	7	3

Source: Survey of Edmonton 1988.

Almost all entrepreneurs considered the economic environment in Edmonton as favorable for the growth of producer services. Although the term 'good economy' is ambiguous, its more precise meaning was determined from in-person interviews with individual managers and presidents of firms (see section 5.6). The interviewees stressed the long term prospects for a steady increase in the demand for producer services in the city. Thus, the term 'good economy' was synonymous with 'steady or increasing demand for our service' in the long term perspective, usually 10 to 20 years. The second statement, 'need for our service in the city' referred to short term perceptions of the market conditions and demand for producer services in the city. The third most frequently cited perception corresponded to personal preferences of the respondents. Those who selected 'quality of the environment' expressed a personal preference for the natural environment in and around Edmonton. These three perceptions of the economic environment constituted the core of the positive image of Edmonton.

The frequency of citing negative perceptions of the economic environment are shown in Table 8.8. Five statements were cited most frequently. They were, in order of frequency, 'cyclical nature of the local economy', 'lack of economic diversity', 'nothing', 'distance from other large cities', and 'competition'. All other statements were cited less frequently, although, in contrast to the frequency of the positive perceptions, the differences were much less pronounced. For example, 'poor tax structure' and 'small size of the local market' were cited by 13 per cent of the respondents.

The range of negative perceptions was between one and six statements (Table 8.9). However, no respondent cited five statements and only one cited six. Thus, the majority of respondents perceived between one and

Table 8.8 Frequency of Negative Perceptions.

Negative Perceptions	%	N
Small size of the local market	13.7	23
Distance from other large cities	17.9	30
Quality of the environment	3.0	5
Lack of the economic diversity	28.6	48
Cyclical nature of the local economy	31.5	53
Poor economic prospects for the city	3.0	5
Poor tax structure	13.1	22
Conservative business climate	9.5	16
Parochial attitudes in the region	9.5	16
Competition	16.7	28
Nothing	23.2	39
Other	7.1	12
Total		168

Source: Survey of Edmonton 1988.

Table 8.9 Range of Negative Perceptions.

	Range					
Negative Perceptions	1	2	3	4	5	6
Small size of the local market	6	7	5	4	-	1
Distance from other large cities	3	10	12	4	-	1
Quality of the environment	-	1	3	1	-	-
Lack of the economic diversity	6	20	16	5	-	1
Cyclical nature of the local economy	12	20	16	4	-	1
Poor economic prospects for the city	-	3	1	1	-	-
Poor tax structure	6	10	5	-	-	1
Conservative business climate	4	3	4	4	-	1
Parochial attitudes in the region	-	4	10	1	-	1
Competition	8	5	12	3	-	-
Nothing	39	-	-	-	-	-
Other	4	5	2	1	-	1
Number of Respondents N	88	44	29	7	-	1

Source: Survey of Edmonton 1988.

four negative factors of Edmonton's economic environment. In other words, there was a considerable number of combinations of negative perceptions. Almost half of those respondents who cited only one statement had no negative perceptions of the economic environment in Edmonton. Since the survey included only those firms which already had offices in Edmonton, it could be expected that there would be a relatively large number of such responses.

The second most frequently cited statements were 'cyclical nature of the local economy', followed by 'competition', 'small size of the local market', 'lack of economic diversity', and 'poor tax structure'. Of those who cited two perceptions, almost half cited 'lack of economic diversity', and 'cyclical nature of the local economy'. Two other perceptions were cited frequently 'distance from other large cities', and 'poor tax structure'. The largest number of combinations of the negative perceptions were in the category of those respondents who cited three statements. The most frequently cited statements were: 'lack of economic diversity', 'cyclical nature of the local economy', 'distance from other large cities', 'competition', and 'parochial attitudes in the region'. Those respondents who cited more than one statement selected 'lack of economic diversity', 'and cyclical nature of the local economy' most frequently.

The positive and negative perceptions were cross tabulated (Table 8.10). The statement 'cyclical nature of the local economy' was cited most frequently by respondents who also cited 'good economy and potential for growth' as well as 'need for our service in the city'. The same responses were cited by those who selected 'lack of economic diversity'.

Table 8.10 Cross Tabulation of Positive and Negative Perceptions.

	Negative Perceptions											
Positive Perceptions	1	2	3	4	5	6	7	8	9	10	11	12
1	6	8	-	12	14	-	6	3	6	5	5	-
2	14	22	3	37	44	2	14	10	14	23	26	9
3	16	21	5	33	36	4	14	10	13	17	26	9
4	4	4	-	7	7	1	4	1	3	4	2	-
5	4	3	2	10	8	3	1	1	-	5	4	1
6	-	-	-	2	3	-	1	-	1	2	2	-
7	1	3	1	-	2	-	-	2	-	1	4	1
8	2	2	-	4	2	-	1	1	-	1	3	3

Positive Perceptions:

(1) Quality of the environment.
(2) Good economy and potential for growth.
(3) Need for our service in the city.
(4) Specific industries in the city.
(5) Ties with other offices.
(6) Quality of city's workforce.
(7) No perception.
(8) Other.

Negative Perceptions:

(1) Small size of the local market.
(2) Distance from other large cities.
(3) Quality of the environment.
(4) Lack of the economic diversity.
(5) Cyclical nature of the local economy.
(6) Poor economic prospects for the city.
(7) Poor tax structure.
(8) Conservative business climate.
(9) Parochial attitudes in the region.
(10) Competition.
(11) Nothing.
(12) Other.

Source: Survey of Edmonton 1988.

Thus, the most frequently cited negative perceptions were selected by those who cited the most frequent positive perceptions. In other words, most of the respondents held similar perceptions of the economic environment in Edmonton. The aggregate image of the local economy held by the entrepreneurs consisted mainly of two positive and two negative perceptions. First, the positive long term perception of the economic prospects for Edmonton's economy and increasing demand for producer services. Second, the negative perception of high dependance of the local economy on the energy sector and the associated economic fluctuations.

There were no significant differences in positive and negative perceptions within the sample. That is, contrary to the hypothesis stated in chapter three (see section 3.3.3), there were no distinct groups of respondents who either rated Edmonton favorably or poorly. This suggests that there were no significant differences in the images about the economic conditions in Edmonton among respondents. Thus, the differences in ratings of the factors of location, discussed earlier in this chapter, result from specific requirements of different types of firms rather then images about the economic environment held in the aggregate by the entrepreneurs. Particularly important to the location decision are the preferences of the individual entrepreneurs. The perceptions of the economic conditions were, within certain margins, the same for all entrepreneurs.

The positive and negative perceptions were analyzed in terms of the structural attributes of firms. Only minor differences were found between the sub-sectors. There were no differences in positive and negative perceptions between exporting and non-exporting firms. Respondents in all firms held very similar images of the city's economic conditions.

8.5 **Summary.**

In this chapter, an attempt was made to determine the importance of certain economic and non-economic factors in the location of producer services. Then, the aggregate image of the economic environment held by the entrepreneurs was assessed. The significance of the locational factors was evaluated on the basis of mean scores on a five point rating scale.

Only one third of the respondents evaluated economic factors prior to locating in Edmonton. This supports Daniel's (1984) suggestion, that traditional factors of location are less significant for producer service firms than classical models imply (Coffey and Polese, 1987). Those who considered such factors decided to locate their firms in Edmonton because of the large local market and associated faverable prospects for making profit and expanding business. The export of services from Edmonton played no significant role in the decision to establish a firm in this city. This apparent lack of interest in a broader economic context deserves further attention in future studies. It was suggested earlier (see Introduction), that the lack of understanding of the role producer services play in the urban economy on the part of the government and local economic authorities, is a major obstacle in their development. The examination of the economic factors of location presented here shows that many key decision-makers in producer service firms also underestimate the role of exporting. This finding demonstrates that the future growth of the sector in Edmonton depends, to a large degree, on the wider recognition by the business community of the role producer services play and can play in its performance.

There were no significant differences between exporting firms in the ratings of the non-economic factors of location. Good connections to the business community coupled with good knowledge of the local market were considered by the majority of respondents as the most important factors. All other factors reflected the individual preferences of the entrepreneurs. This finding shows that Edmonton was selected by many firms as the best location because of personal preference or the family ties of the decision-makers rather than for purely economic considerations.

Almost all entrepreneurs considered the economic environment in Edmonton as favorable for the growth of producer services. The respondents stressed good long term prospects for a steady increase in the demand for their services. The negative perceptions focused on the cyclical nature of the local economy and lack of economic diversity preventing producer service firms from entering new markets. There were no distinct groups of respondents who either rated Edmonton favorably or poorly. All respondents held very similar images of the economic environment in Edmonton. Thus it was not possible to assess the influence of different images on the ratings of locational factors.

9. CONCLUSIONS.

Increasing attention is being focused on the role producer services play in urban economies. In the past, much economic theory and practice was structured around the influence exercised by the material and goods producing industries in urban economies rather than producer services. It is only recently that producer services have attracted serious attention. Although debate on the impact of structural changes on the urban economy and the economy at large is far from over, the emerging consensus among researchers is that producer services play an important role in development. The importance of these activities lies not only in the employment they offer but also in the role they perform in facilitating production and their contribution to the economic base of cities. The central argument of this thesis is that producer services can contribute to the economic base through exporting. The goal of this study was to determine whether producer services are being exported from Edmonton, who are the exporters, where are they being exported, and how much is exported. The theory outlined in the introductory chapter of this thesis stresses the role the producer service sector plays in the economic growth of Western Canadian cities. The intention of this thesis was to contribute through an empirical analysis to the debate on the role of producer services in urban growth. This goal was achieved through several specific research objectives presented in chapter three. They are briefly summarized below.

First, the relevant literature was reviewed to determine the function of producer services in urban economies in Canada and abroad. Secondary data were then compiled to determine the number, type, and size of producer service firms in Edmonton. A similar database was collected for Calgary and Alberta so that comparisons could be made with the producer service sector in Edmonton.

To determine the export sales of producer services a survey of a sample of producer service firms in Edmonton was undertaken. Then, the major characteristics of exporting firms were examined to determine their structural attributes.

The output linkages of exporting firms were examined and compared with the output linkages of non-exporting firms. The objective was to determine who were the customers of the producer service firms which export and to find the cause of the high rate of employment growth in producer services in Edmonton. Input requirements of exporting firms were investigated in order to establish whether there were any differences between exporting producer service firms. Finally, factors which are important to the location of exporting producer service firms were examined. Two types of locational factors were investigated. The objective assessments of the traditional economic factors and subjective judgements held by individuals involved in the location decision. In the following section, the major findings of the study are summarized.

9.1 **Summary of Empirical Findings.**

Edmonton has a large and diversified producer service sector. In 1986, over 30 per cent of all producer service firms in Alberta were located in this city. For example, engineering consulting and architectural design firms were represented by 505 offices in Edmonton. Moreover, producer services was the fastest growing sector of Edmonton's economy in terms of employment between 1971 and 1981. The majority, that is 92 per cent of all firms, were small and employed fewer than 26 workers. The most frequent type of firm was an independent office managed by a local entrepreneur. There were large organizational differences between the sub-sectors. The engineering consulting sub-sector had the highest proportion of head-offices, followed by computer service and management consulting firms. The computer service sub-sector had the highest proportion of branch offices in Edmonton.

The survey of a sample of producer service firms revealed that 75 per cent of them export services beyond the local market in Edmonton. Over one third of the total revenue of the sector came from export sales. The export revenue reached over 800 million dollars in 1987. This compares with the retail trade revenues in Edmonton of 4,500 million dollars in 1981, while the value-added to manufacturing goods amounted to 1,800 million dollars in 1983. The whole service sector represents nearly 58 per cent of the provincial GDP while the mining industry accounts for 27 per cent (The City of Edmonton, 1987). Thus, it can be concluded that the producer service sector significantly contributed to the economic base of Edmonton. Although its export revenue was smaller than the total revenue of other sectors, the total revenue of the producer service sector was close to 2,400 million dollars; that is more than the total value of manufactured goods produced in Edmonton.

The largest market outside Edmonton was the rest of Alberta, including Calgary; the latter city accounted for 7 per cent of export sales by itself. More than 9 per cent of sales were to customers outside Alberta.

The largest sales were to the Western Provinces and the United States. Thus, contrary to conclusions proposed by others, Edmonton exports a large volume of producer services in spite of its peripheral location and lack of a large manufacturing base. However, producer service firms located in Edmonton are largely confined to the intra-provincial market. Sales outside the province, with the notable exception of engineering services, play a minor role.

There were large differences in export sales between individual sub-sectors. The most frequently exported services were engineering, computer, and architectural services. Other sub-sectors were selling their services to customers in Edmonton. Legal and accounting services were largely local. The largest exporters of producer services were head-offices. Branch firms and independent firms exported a much lower proportion of their output. It was established, however, contrary to Daniel's (1984) findings elswhere, that branch firms in Edmonton were exporting a large proportion of their output. Size of firm was not a significant factor for export sales. The results showed small firms can be as effective exporters of producer services as large firms. A notable exception were the engineering firms whose exports increased with the size of firm.

The export sales of producer services will increase in the future. Exporting firms expected a significant increase of export sales in the next five years. Also, over one fifth of firms which exported less than 10 per cent of their output (defined here as non-exporting firms) expected a significant geographical shift towards markets outside Edmonton. Few firms, however, developed a marketing strategy aimed specifically towards customers outside Edmonton. Thus, a typical exporting firm in Edmonton can be described as a 'passive exporter'. Over one third of all exporting firms developed their export sales because of opportunities rather than a planned effort. This finding is indicative of potentially much larger export sales than is the case now. The next section of this chapter elaborates on this point.

Over one quarter of the total output of the producer service sector was sold to the government. This sector was also the main customer of the engineering, computer, and architectural sub-sectors. The second largest consumers of producer services were other service sectors including commerce, finance, insurance, real estate, and producer services. Thus, the growth of the producer service sector in Edmonton is not associated with the demand from the primary and secondary sectors as studies reviewed in chapter three imply. The development of the sector in Edmonton is tied to final demand for producer services by the government, and to complex linkages within the various service sectors. The importance of demand for producer services from the primary sector should not be underestimated. However, the future of producer services in Edmonton depends on the combined demand from the government and service sectors. This finding also demonstrates that a large manufacturing sector is not a prerequisite for the successful development of locally based producer service firms.

More than half of all producer service firms in Edmonton did not purchase any producer services from other firms. The remainder of the firms had extensive input linkages with other firms. Most producer services were purchased from firms located in Edmonton. Over 80 per cent of all other inputs, that is material goods and other services, were obtained from firms located in Edmonton. This finding implies a high degree of integration of the producer service sector with the local economic base. It also shows that producer service firms, most likely, spend a large proportion of their revenue with local firms. However, firms with the highest potential to contribute to the local economy, that is exporting firms, imported almost twice as many services and goods as non-exporting firms. The bulk of these imports were engineering and computer services, and computer hardware and software. Because of the importance of this leakage of revenue reasons for importing were examined.

The major reason for imports of services was the low reliability of local subcontractors. All exporting firms indicated that the reliability and quality of some locally managed firms were major problems. These problems are addressed in more detail in the policy implications section of this chapter.

There were also large differences in labour inputs between exporting and non-exporting firms. Exporting firms hired almost twice as many professionals and technicians as non-exporting firms. Thus, the pool of skilled labour was an important input factor for exporting firms.

Traditional economic factors were less significant for the location of exporting firms than neo-classical models imply. Over two thirds of the entrepreneurs surveyed did not consider such factors in their locational decision. Instead they considered a variety of subjective factors such as personal preference, quality of the environment, and family ties. This is a significant finding which implies that future modelling efforts should be directed towards behavioural rather than the formal classical approach to location. Those who considered economic factors located their firms in Edmonton because of the large local market and expected prospects for making profits and expanding their operations. Exporting of services did not play any significant role in the location decision.

The majority of firms rated non-economic factors in a similar manner. All key decision-makers considered good connections to the business community and a thorough knowledge of the local market to be the most important factors in the location of producer services. All other considerations stressed the individual preferences of the entrepreneurs. This finding demonstrates the importance to the location decision of the individual businessman's personal preferences and family ties. Almost all entrepreneurs considered the economic environment in Edmonton as favourable for the growth of producer service firms: Long term prospects for growth and a steady increase in demand were considered by the majority as the principal positive feature of Edmonton's economy. The negative perceptions focused on the cyclical nature of the local economy and lack of economic diversity. In aggregate, the majority of the managers and entrepreneurs held similar images of the economic environment in Edmonton.

9.2 **Theoretical Synthesis.**

These findings have important implications for any future theoretical work aimed at linking the growth of the producer service sector with urban economic growth. In the introduction to this thesis it was stated that no theory articulates clearly the interrelationships between urban growth, the development of producer services, and exports of these services. Such a theory must include the following empirical generalizations arising from the findings in this thesis.

First, the producer service sector provides a stimulus to local economic growth through the creation of new job opportunities. Second, the producer service sector contributes directly to the economic base of cities through non-local and export sales. Third, the producer service sector's role lies in its contribution to other sectors in terms of enhancing their productivity, and facilitating innovation, investment and technology transfer. The type of linkages between producer services (i.e. engineering, computer, management services) and their clients suggests that this type of service may help to maintain or increase the comparative advantage of industries located in a particular region. Fourth, a manufacturing base is not a prerequisite for the development of a producer service sector.

Additionally, a theory of urban growth in a post-industrial economy must address the following broad questions, each related to a different scale of analysis. The dynamic analysis of the employment shifts in the economy should incorporate the notion of a direct transition from a resource based to a service based economy. The findings presented here clearly demonstrate that such a scenario is not only possible but is already in evidence in Edmonton. The prime stimulus for the development of the local producer service sector and associated non-local sales is another service sector, the government. Therefore, the existing theories which ignore the government's involvement, such as the theory of stages of economic development and the Fisher-Clark model, have to be modified.

At the interregional level the traditional core-periphery framework, hierarchical model of flows, and theory of services' trade have to be revised. Cities such as Edmonton occupying the middle ground between very large metropolitan centers and the lower levels of the urban hierarchy, sell their locally produced services to other urban centers. Thus, the notion of an essentially non-tradeable character of services has to be abandoned. The evidence presented in this thesis indicates that the direct contribution of producer services to the local economy will increase in the future.

At the regional scale two opposite processes seem to be at work. First, contrary to earlier predictions, producer services are increasingly concentrated in a few relatively large cities. Thus, the two primate cities in Alberta, Edmonton and Calgary, dominate almost the entire intraregional trade of producer services. However, the opposite trend of deconcentration operates at the inter-provincial level. The producer service firms tend to be distributed between large and medium sized cities in each province.

These three levels of enquiry should be addressed in the conceptualization of the post-industrial or service-dominated phase of urban growth and development. This thesis provides strong support for the need to re-evaluate and re-think the theory explaining the growth of cities in the service economy.

The findings outlined here have important policy implications for the producer service sector in Edmonton. The following section of this chapter focuses on the practical policy implications of this study.

9.3 **Policy Implications.**

Three major policy implications for the producer service sector in Edmonton result from the present study. First, the export of producer services can be significantly increased. Second, the government can play a key role in promoting the export of producer services. Third, reliability and quality of some producer services should be improved in order to increase exports of the sector as a whole. Each of these issues is addressed in detail below.

Although the effect increased service inputs and innovation have had on urban economies is not resolved satisfactorily, the gradually emerging body of research implies that producer services can and will increasingly play a major role in the development of cities. 'Given the role of producer services in the growth of productivity and international competitiveness, it may well be that spending a given amount of subsidy on producer services generates more employment, output, and productivity in all of Canada and in specific regions than does the more standard spending on production facilities and social overhead' (Grubel and Walker, 1989, p.259). The focus of this thesis was on the export contribution of these activities to the economic base of Edmonton. The results have shown that despite a peripheral location and the lack of a manufacturing base, producer service firms located in Edmonton export a large proportion of their output. Thus, an expansion of the export markets and an increase of export sales could significantly influence the composition of the economic base of the city.

As Grubel and Walker point out, 'The policy implications of these characteristics are clear in principle. Policies which encourage industries that use producer services will stimulate demand for them as a by-product. However, policies which encourage the development of producer service firms can also be expected to stimulate the growth of the industries using them. The difficult problem is to know empirically the conditions under which it is more advantageous to subsidize producer service production rather than its use [...] If development policies have to be undertaken in the absence of solid empirical knowledge about relative rates of return, they should be neutral in their relative impact on the two sectors' (Grubel and Walker, 1989, pp.193-194).

At the moment, however, there is no specific economic policy in Alberta focused on this type of economic activity. The long term proposal for an industrial strategy in Alberta and Edmonton (Government of Alberta, 1984) did not make any explicit reference in its policy objectives to producer services. Even though the long term goals of the economic policy set in this document were to diversify the Albertan economy, only primary and high technology industries were considered to be worth further attention.

Even more revealing is the fact that entrepreneurs and managers of the producer service firms are also largely unaware of the export potential of the sector. This apparent lack of a broader economic perspective is a serious barrier to increasing export revenue of the sector. Thus, if broadening of the local economic base through development of the producer service sector is to be effective, future economic policy must explicitly acknowledge the role of exporting in this development. The awareness of the potential benefits of exports of producer services has to be increased both among government officials and policy makers, as well as local entrepreneurs themselves.

It is postulated here that government should help private producer service firms to expand export markets through an assistance program aimed at designing market strategies. The government should also introduce a financial subsidies scheme whose objective would be to improve reliability of the local suppliers of inputs to producer service firms and promotion of the producer service sector's products outside Edmonton. This last suggestion leads to the second policy implication.

The major customer of the producer service sector in Edmonton is the government. This finding has broad policy consequences. First, the government might provide assistance in identifying potential markets outside Alberta. This policy objective could be achieved jointly with the private sector firms specializing in marketing research. Second, local economic development authorities should develop an investment policy providing financial assistance or tax exemptions for projects involving producer services. Particular attention should be given to knowledge and human capital intensive ventures. Third, the purchasing policies of the local government should favour purchases from local producer service firms. This policy, however, should retain an element of competitiveness to avoid distortion of the market mechanism. Fourth, the government should financially assist projects involving exports of producer services. The role of the government should be limited to the initial stages of the project. After successful penetration of a market government assistance should be minimized. This suggestion is particularly important considering the apparent reluctance of the financial institutions in Edmonton to finance export ventures of small firms. Fifth, the government should help selected firms in engineering and computer service sub-sectors to broaden the range and quality of services. The aim of this policy is to create a reliable base of producer service firms supplying a broad range of high quality services to firms exporting services. This last suggestion leads to the third policy implication. It was established through the present study that the principal reason for imports of engineering and computer services was low reliability and quality of locally supplied services resulting from the high rate of closures in Edmonton. This rate of closures of producer service firms should become an area of concern for local economic development authorities and the Chamber of Commerce. The improvement of the reliability and quality of local suppliers will increase export potential of locally operated firms.

The combined effect of the recommendations made here should increase competitiveness and thus the export of producer services in Edmonton. Moreover, a significant diversification of the local economic base should be achieved. However, the producer service firms can contribute to the local economy in other ways. The systematic research of the growth inducing role of producer services should become a major objective of the future research in this area. The specific suggestions for future research in this area are discussed next.

9.4 Suggestions for Future Research.

There are four groups of recommendations for future research. First, there is a need to replicate this study in other Western Canadian cities. Second, other ways in which producer services contribute to urban economies should be investigated. Third, the effect of policies discussed in the previous section (if implemented) should be examined. Fourth, models of the location of producer services should incorporate behavioural factors.

The results presented in this study demonstrate that a medium-sized peripheral city can successfully develop a broad range of producer services. While there is good reason to believe that exporting producer services is common to most Western Canadian cities (Beyers and Alvine, 1985; Ley and Hutton, 1987), there is clearly a need to verify the generality of this finding. Particularly pressing is the need to replicate the study in Calgary, using the research design presented here. As shown in chapter four of this thesis, Calgary had in 1986 over 64 per cent of all engineering consulting firms in Alberta. Because of the lack of comparative data it can only be assumed that Calgary based engineering service firms are also involved in exporting. This assumption is strongly supported by the fact that Calgary had three times as many firms in this sub-sector as Edmonton, a very high number for a city slightly smaller than Edmonton. It is unlikely that the demand from the numerous oil companies headquartered in Calgary could justify the presence of almost 1500 private engineering consulting firms in this city. A verification of this hypothesis is needed if the nature of competition for primacy between Edmonton and Calgary is to be understood.

The focus of this thesis is on the exports, that is, non-local trade of producer services. There are, however, other channels through which producer services can contribute to the urban economy (see chapter three). Producer services are a dynamic force driving the production of goods. According to a recent study by Grubel and Walker (1989), service industries are the vehicle by which new technology is introduced into the goods processing process. The new technology and techniques introduced in such a way can lead to the lowering of production costs, the development of improved and new products, and new and efficient methods for the distribution of goods and resources. Thus, the inputs of producer services contribute significantly to the competitive advantage of one region over another in the production of goods. The end result is the increased productivity of goods producing industries which, in turn, export their products outside the local market. The bulk of producer services have human and knowledge capital as one of the main inputs. Thus, their output provided to other firms embodies this human and knowledge capital. As these outputs are used as inputs into the further production of goods and services they end up included in goods and services for final consumption and in exports. The difficult task of quantifying the effects which increased service sector inputs and innovation have had on the goods producing sector should be a top ranking item on an agenda for future research.

The investigation of the link between goods producing and producer service sectors is particularly important since, theoretically, there is no limit to the proportion of services embodied in the value of goods, short of the full 100 per cent. Goods and services in the final use and export will consist of ever-increasing amounts of embodied human and knowledge capital. Thus, the understanding of the interdependence between the two sectors is a research problem of prime importance.

The third research agenda should focus on the effects government policies have on the producer service sector. As indicated earlier, it is not clear whether such policies should be aimed at the users or producers of the producer services. Theoretically, both types of policies should have an effect of increasing employment in producer services, contribute to the productivity of the users, and increase competitiveness of both sectors. However, no such policies exist at present in Canada. If implemented, their effects should become the focus of systematic monitoring.

Finally, the existing and future models of location of producer services should incorporate the behavioural approach. While the role of purely economic factors should not be underestimated, the present study clearly demonstrated the importance of non-economic factors to the location of producer services. The focus of future studies should be on the role of the individual entrepreneur in the location decision. The particular influence of personal preferences to this decision should be the focus. It is postulated here that such an approach will significantly improve our understanding of the location of producer services.

Although the present study focused on the empirical testing of the hypotheses relating to the export trade of producer services, some practical recommendations for policy design for the producer service sector were possible. However, the major success of this study is that the contributing role of the producer service sector was verified. It is hoped that these results will help us to understand the role producer services play in urban economies and thereby open the way to better understanding of the nature of complex changes in the economies of the Canadian cities.

BIBLIOGRAPHY

Alberta Career Development and Employment (1987) Alberta Business Service Industries: Survey Results, Labour Market Industry Analysis Branch, Edmonton.

Alberta Economic Development and Trade(1986a) Consulting Index: Alberta Engineers, Geologists, Geophysicists. Sixth Edition, Alberta Economic Development and Trade, Edmonton.

Alberta Economic Development and Trade(1986b) Alberta Service Sector Study. Final Report, The DPA Group Inc.

Barr, B.M., and Lehr, J.C.(1987) The Western Interior: The Transformation of a Hinterland Region, in: McCann, L.D.(ed.) Heartland and Hinterland. A Geography of Canada. Second Edition, Prentice-Hall, Scarborough, pp.287-349.

Bell, D.(1968) The Measurement of Knowledge and Technology, in: Sheldon, E., and Moore, W.(eds.) Indicators of Social Change, New York, pp.152-153.

Bell, D.(1973) The Coming of Post-Industrial Society. A Venture in Social Forecasting, Basic Books, New York.

Beyers, W.B.(1984) Survey of Services in the Portland Region, (mimeo).

Beyers, W.B., and Alvine, M.J.(1985) Export Services in Post-Industrial Society, Papers of the Regional Science Association, 57, pp.33-45.

Birch, D.L.(1987) Job Creation in America: How Our Smallest Companies Put the Most People to Work, The Free Press, New York.

Britton, J.N.H.(1974) Environmental Adaptation of Industrial Plants: Service Linkages, Locational Environment and Organization, in: Hamilton, F.E.I.(ed.) Spatial Perspectives on Industrial Organization and Decision Making, Wiley, Chichester, Sussex, pp.363-390.

Cannon, T.,(1980) The Smaller Firm in the Export Environment, in: Gibb, A. and Webb, T.(eds.) Policy Issues in Small Business Research, Saxon House, Farnborough, pp.140-154.

Chapman, K. and Walker, D.(1987) Industrial Location: Principles and Policies, Blackwell, Oxford.

Christy, C.V., and Ironside, R.G.(1987) Promoting 'High Technology' Industry: Location Factors and Public Policy, in: Chapman, K., and Humphrys, G.(eds.) Technical Change and Industrial Policy, Blackwell, Oxford, pp.234-256.

The City of Edmonton(1987) Socio-economic Forecasts 1987-1992: City of

Edmonton, The City of Edmonton, City Forecast Committee, June 18, 1987.

Clark, C.A.(1940) The Conditions of Economic Progress, Macmillan, London.

Coffey, W.J., and Polese, M.(1986) The Interurban Location of Office Activities: A Framework for Analysis, in: Savoie, D.(ed.) The Canadian Economy: A Regional Perspective, Methuen, Toronto, pp.85-103.

Coffey, W.J., and Polese, M.(1987a) The Location of Economic Activity in Canada, 1971-1981: Urban-Rural Shifts and Centre-Periphery Relationships, Paper presented for the Annual Meeting of the Canadian Regional Science Association, McMaster University, Hamilton, Ontario, May 29-30, 1987.

Coffey, W.J., and Polese, M.(1987b) Trade and Location of Producer Services: A Canadian Perspective, Environment and Planning A, 19(5), pp.597-611.

Contact Influential(1987) Edmonton: Alberta 1986-1987, Contact Influential.

Damesick, P.J.(1986) Service Industries, Employment and Regional Development in Britain: A Review of Recent Trends and Issues, Transactions of the Institute of British Geographers, N.S., 11, pp.212-226.

Daniels, P.W.(1982) Service Industries: Growth and Location, Cambridge University Press, Cambridge.

Daniels, P.W.(1983) Business Services in British Provincial Cities: Location and Control, Environment and Planning A, 15, pp.1101-1120.

Daniels, P.W.(1984) Business Services in Provincial Cities: Origins of Input and Destinations of Output, Tijd. v. Econ. en Soc. Geog., 75, pp.123-139.

Daniels, P.W.(1985a) Service Industries. A Geographical Appraisal, Methuen, London.

Daniels, P.W.(1985b) The Geography of Services, Progress in Human Geography, (3), pp.443-451.

van Dinteren, J.H.J.(1987) The Role of Business-service Offices in the Economy of Medium-sized Cities, Environment and Planning A, 19(5), pp.669-686.

Dun and Bradstreet(1987) Dun and Bradstreet Reference Book: Western Provinces, Dun and Bradstreet Canada Ltd.

Economic Council of Canada(1984) Western Transition, Minister of Supply and Services Canada, Cat.no. EC22-123/1984E.

The Economist(1987) They Also Serve ..., The Economist, August 22, pp. 16-17.

Edmonton Economic Development Authority(1986) Metro Edmonton. Key Economic Indicators.

Edmonton Telephones(1987) Edmonton and Vicinity Yellow Pages Directory 1987, Edmonton Telephones.

Fisher, A.G.B.(1935) The Clash of Progress and Security, Macmillan, London.

Fuchs, V.R.(1968) The Service Economy, National Bureau of Economic Research, Columbia University Press, New York.

Gershuny, J.I., and Miles, I.D.(1983) The New Service Economy: The Transformation of Employment in Industrial Societies, Pinter, London.

Gillespie, A., and Green, A.E.(1987) The Changing Geography of Producer Services Employment in Britain, Regional Studies, 21(5), pp.397-411.

Ginzberg, E., Noyelle, T.J., and Stanback, T.M.(1986) Technology and Employment: Concepts and Clarification, Westview Press, London.

Gottmann, J.(1970) Urban Centrality and the Interweaving of Quaternary Activities, Ekistics, 29(174), pp.322-331.

Government of Alberta(1984) White Paper: Proposals for an Industrial and Science Strategy for Albertans 1985 to 1990, Government of Alberta, July.

Greenfield, H.(1966) Manpower and the Growth of Producer Services, Columbia University Press, New York.

Grubel, H.G., and Walker, M.A.(1989) Service Industry Growth: Causes and Effects, The Fraser Institute.

Hall, P.(1987) The Geography of Post-industrial Economy, in: Brotchie, J.F., Hall, P., and Newton, P.W.(eds.) The Spatial Impact of Technological Change, Croom Helm, London, pp.3-17.

Hannah, L., and Kay, J.A.(1977) Concentration in Modern Industry: Theory, Measurment and the UK Experience, Macmillan, London.

Hirschhorn, L.(1979) The Urban Crisis: A Post-industrial Perspective, Journal of Regional Science, 19(1), pp.109-118.

Howells, J., and Green, A.E.(1986a) Location, Technological Innovation and Structural Change in UK Services: National and Regional Economic Development Prospects, Final Report Prepared for FASTII, Forecasting and Assessment in the Field of Science and Technology Directorate-

General for Science, Research and Development Commission of the European Communities, CURDS, University of Newcastle upon Tyne.

Howells, J., and Green, A.E.(1986b) Location, Technology and Industrial Organization of UK Services, Progress in Planning, 26, pp.83-184.

Lambooy, J.G., and Tordoir, P.P.(1985) Professional Services and Regional Development: A Conceptual Approach, Paper Presented at a Conference on Services and Regional Development, FAST, CEC, Brussels, October (mimeo).

Ley, D., and Hutton, T.(1987) Vancouver's Corporate Complex and Producer Service Sector: Linkages and Divergence with a Provincial Staple Economy, Regional Studies, 21(5), pp.413-424.

Maciejewicz, J.(1988) Services in Trade and Economic Relations of the Socialist Countries of Eastern Europe, Central School of Planning and Statistics, Warsaw (SGPiS) Szkola Glowna Planowania i Statystyki.

Malthus, T.R.(1798) An Essay on the Principle of Population and a Summary View of the Principle of Population, edition 1970, Flew, A.(ed.), Pelican, London.

March, J.G. and Simon, H.A.(1958) Organizations, Wiley, New York.

Marquand, J.M.(1983) The Changing Distribution of the Service Employment, in: Goddard, J.B., and Champion, A.G.(eds.) The Urban and Regional Transformation of Britain, London, pp.99-134.

Marshall, J.N.(1982) Linkages Between Manufacturing Industry and Business Services, Environment and Planning A, 14, pp.1523-1540.

Marshall. J.N.(1983) Business-service Activities in British Provincial Conurbations, Environment and Planning A, 15, pp.1343-1359.

Marshall, J.N., Wood, P., Daniels, P., and McKinnon, D.(1987) Producer Services and Uneven Development, Area, 19(1), pp.35-41.

McCann, L.D.(ed.)(1987) Heartland and Hinterland: A Geography of Canada, Second Edition, Prentice-Hall; Scarborough.

McRae, J.J., and Desbois, M.(1987) The Service Sector in Vancouver: Profile, Problems and Potential, The Institute for Research on Public Policy, Vancouver.

McRae, J.J., and Desbois, M.M.(eds.)(1988) Traded and Non-traded Services: Problems of Theory, Measurement and Policy. Proceedings of a Service Sector Roundtable, June 2-4, 1987, Toronto, The Institute for Research on Public Policy, Halifax.

Michalak, W.Z., and Fairbairn, K.J.(1988) Producer Services in a Peripheral Economy, Canadian Journal of Regional Science, 11(3), (forthcoming).

North, D.(1955) Location Theory and Regional Economic Growth, Journal of Political Economy, 63, pp.243-258.

North, D.(1956) A Reply, Journal of Political Economy, 64, pp.165-168.

Noyelle, T.J.(1983) The Rise of Advanced Services. Some Implications for Economic Development in U.S. Cities, Journal of American Planning Association, 49(3), pp.280-290.

Noyelle, T.J.(1988) Services and the New Economy: Towards a New Labour Market Segmentation, Conservation of Human Resources, Columbia University, New York.

Noyelle, T.J., and Stanback, T.M.(1984) The Economic Transformation of American Cities, Rowman and Allanheld, Totowa, N.J.

Persson, C.(1979) Environmental Images and Decision Process: Some Theoretical and Methodological Reflections, in: Daniels, P.W.(ed.) Spatial Patterns of Office Growth and Location, Wiley, New York, pp.175-192.

Picot, W.G.(1986) Canada's Industries: Growth in Jobs Over Three Decades. A Review of the Changing Industrial Mix of Employment 1951-1984, Statistics Canada, Social and Economic Studies Division, Cat.no. 89-507E, Ottawa.

Piore, M., and Sabel, C.(1984) The Second Industrial Divide, Basic Books, New York.

Pred, A.(1977) City-Systems in Advanced Economies. Past Growth, Present Processes and Future Development Options, Wiley, New York.

Schoeller, P., Blotevogel, H.H., Buchholz, H.J., Hommel, M., and Schilling-Kaletsch(1984) The Settlement System of the Federal Republic of Germany, in: Bourne, L.S., Sinclair, R., and Dziewonski, K.(eds.) Urbanization and Settlement Systems: International Perspectives, Oxford University Press, Oxford.

Simai, M.(1988) The Service Sector in the Socialist Countries, Hungarian Academy of Sciences, Budapest.

Simon, H.A.(1957) Models of Man, Wiley, New York.

Simon, H.A.(1959) Theories of Decision-making in Economics and Behavioural Science, American Economic Review, 49, pp.253-283.

Smith, A.(1776) An Inquiry into the Nature and Causes of the Wealth of Nations, 4 vols, edition 1976, Skinner, A.(ed.) The Wealth of Nations, Penguin, London.

Smith, P.J.(1987) Alberta Since 1945: The Maturing Settlement System, in: McCann, L.D.(ed.) Heartland and Hinterland: A Geography of Canada. Second Edition, Prentice-Hall, Scarborough, pp.350-399.

Stabler, J.C., and Howe, E.C.(1988) Service Exports and Regional Growth in the Post-industrial Era, Journal of Regional Science, 28(3), pp.303-315.

Stanback, T.M.(1979) Understanding the Service Economy - Employment, Productivity, Location, Policy Studies in Employment and Welfare, No.35, John Hopkins University Press, Baltimore.

Stanback, T.M., Bearse, P.J., Noyelle, T.J., and Karasek, R.A.(1981) Services: The New Economy, Osmund, Totowa, N.J.

Stanback, T.M., and Noyelle, T.J.(1982) Cities in Transition: Changing Job Structures, Osmund, Totowa, N.J.

Statistics Canada(1984) Business Micro-data Integration and Analysis, Unpublished Data.

Statistics Canada(1986) Business Register.

Stigler, G.(1956) Trends in Employment in the Service Industries, Princeton University Press, Princeton.

Swan, N.(1984) Double Regional Equilibria and Their Significance for Western Canada, Paper Delivered to Eastern Economic Association, March 1984 (mimeo), Economic Council of Canada, Ottawa.

Tiebout, C.M.(1956) Exports and Regional Economic Growth, Journal of Political Economy, 64, pp.160-164 and 169.

Tornqvist, G.E.(1970) Contact Systems and Regional Development, Lund Studies in Geography, Series B, 35.

Walker, R.(1985) Is There a Service Economy ? The Changing Capitalist Division of Labour, Science and Society, 49, pp.42-83.

Weber, A. (1909) Uber den Standort der Industrien, 1. Reine Theorie des Standorts, Tubingen. English translation: (1929) Theory of the Location of Industries, C.J. Friedrich, The University of Chicago Press, Chicago.

Wood, P.A.(1986) The Anatomy of Job Loss and Job Creation: Some Speculations on the Role of the 'Producer Service' Sector, Regional Studies, 20, pp.37-46.

Wood, P.A.(1987) Producer Services and Economic Change: Some Canadian Evidence, in: Chapman, K., and Humphrys, G.(eds.) Technical Change and Industrial Policy, Blackwell, Oxford, pp.51-77.

Appendix

1988 Survey of Producer Services in Edmonton

Producer Services Project

THE QUESTIONNAIRE IS DIVIDED INTO SEVERAL SECTIONS. THE FIRST FEW QUESTIONS ARE CONCERNED WITH BASIC INFORMATION ABOUT YOUR FIRM.

Q1. What is the organizational status of your office ? (Circle **one** number)

1 INDEPENDENT OFFICE 2 HEAD-OFFICE 3 BRANCH-OFFICE

If your office is a branch-office in which city is the head-office ? ______________________________

Q2. Which of the following best describes the services provided by your firm ? (Circle maximum three items)

1 Advertising
2 Credit reporting and collection
3 Blueprinting and photocopying
4 Employment services
5 Computer programming
6 Data processing
7 Computer installation and maintenance
8 Computer related services
9 Research & Development Laboratory
10 Management consulting
11 Marketing
12 Public relations consulting
13 Detective and protective services (security)
14 Equipment rental and leasing
15 Photofinishing services
16 Commercial testing laboratory
17 Legal services
18 Landscaping and architecture
19 Engineering consulting
20 Architectural consulting
21 Accounting, auditing, bookkeeping
22 Other (specify) ______________________

Q3. How many employees do you have now at this office ? ______________

NOW HERE ARE SOME QUESTIONS ABOUT THE LOCATIONAL CHOICE OF YOUR FIRM. PLEASE READ EACH QUESTION CAREFULY, THEN CIRCLE THE NUMBER THAT CORRESPONDS MOST CLOSELY TO YOUR OPINION ABOUT THE ITEMS LISTED.

THIS IS WHAT THE NUMBERS MEAN IN QUESTIONS 5,7, AND 16.

1 Indicates that the item specified is in your opinion **not at all important**
2 Indicates that the item specified is in your opinion **not too important**
3 Indicates that the item specified is in your opinion **neither important nor unimportant**
4 Indicates that the item specified is in your opinion **somewhat important but not very important**
5 Indicates that the item specified is in your opinion **very important**

Q4 . Was this city deliberately selected on the basis of an economic evaluation as the best.location for your firm ? (Circle **one** number)

1 NO (skip to Q7)
2 YES

Q5 . In deciding where to locate your firm, how did you rate each of the following factors when your firm was established in this city ? (Circle the appropriate number for each item).

	Not at all important	Not too important	Neutral	Somewhat important	Very important
(1) Low rent	1	2	3	4	5
(2) Proximity to clients (market)	1	2	3	4	5
(3) Proximity to competition	1	2	3	4	5
(4) Proximity to suppliers (subcontractors)	1	2	3	4	5
(5) Access to transport and communication systems	1	2	3	4	5
(6) Good profit making prospects	1	2	3	4	5
(7) Good labour relations	1	2	3	4	5
(8) Good potential for expansion	1	2	3	4	5
(9) Good prospects for the growth of the city's economy	1	2	3	4	5
(10) Access to highly skilled labour	1	2	3	4	5
(11) Good export prospects	1	2	3	4	5

Q6. Which of the factors listed in Question 5 do you regard as the most important and second most important ? (Write the item number in the appropriate box)

☐ MOST IMPORTANT CONSIDERATION
☐ SECOND MOST IMPORTANT CONSIDERATION

Q7. How did you rate each of the following factors when your firm was established in this city ? (Circle the appropriate number for **each** item)

	Not at all important	Not too important	Neutral	Somewhat important	Very important
(1) Amenity of environment in the city	1	2	3	4	5
(2) The size of the city	1	2	3	4	5
(3) Personal preference	1	2	3	4	5
(4) Family ties in the city	1	2	3	4	5
(5) Local education	1	2	3	4	5
(6) Good connections to business comunity	1	2	3	4	5
(7) Good knowledge of the local market	1	2	3	4	5
(8) Prestige location	1	2	3	4	5
(9) No other alternative	1	2	3	4	5

Q8. Which of the considerations listed in Question 7 do you regard as the most important and second most important ? (Write the item number in the appropriate box)

☐ MOST IMPORTANT CONSIDERATION
☐ SECOND MOST IMPORTANT CONSIDERATION

Q9. When the firm began (or moved to the city) what was perceived that was **positive** about the city ? (Circle as many numbers as appropriate)

1 Quality of the environment
2 Good economy and potential for growth
3 Need for our service in the city and region
4 Specific industries in the city
5 Ties with other offices of this firm to the city
6 Quality of city's workforce
7 No perception
8 Other (Please specify) ____________________

Q10. What was perceived that was **negative** about the city ? (Circle as many numbers as appropriate)

1 Small size of the local market
2 Distance from other large cities
3 Quality of environment
4 Lack of economic diversity
5 Cyclical nature of the local economy
6 Poor economic prospects for the city
7 Poor tax structure/ high taxes
8 Conservative business climate
9 Parochial attitudes in the region
10 Competition
11 Nothing
12 Other (Please specify) ____________________

IN THIS SECTION THERE ARE A FEW QUESTIONS ABOUT THE REGULAR CONTACTS WHICH YOUR FIRM MAY HAVE WITH OTHER FIRMS AND SUBCONTRACTORS (ALL QUESTIONS REFER TO TRANSACTIONS IN 1987).

Q11. Do you subcontract part of your business to other firms ? (Circle **one** number)

1 NO (Skip to Q15)
2 YES

Please consider your total subcontracting expenses as 100 per cent. Then, divide this total into two categories: expenses in Edmonton (Q12) and expenses outside the city (Q13). The total of Table Q14 **and** Q15 should equal 100 per cent.

Q12. To what firms in Edmonton do you subcontract part of your business ? Please estimate the major areas of your expenses and mark the appropriate column in the table below.

	per cent of expenses		
	Less than 10%	11-50 %	More than 50%
(1) Financial & legal services			
(2) Computer & engineering serv.			
(3) Management & marketing serv.			
(4) Equipment rental & transport			
(5) Other (Please specify below)			

____

Q13. To what firms outside Edmonton do you subcontract part of your business ? Please estimate the major areas of your expenses and mark the appropriate column in the table below.

	per cent of expenses		
	Less than 10%	11-50 %	More than 50%
(1) Financial & legal services			
(2) Computer & engineering serv.			
(3) Management & marketing serv.			
(4) Equipment rental & transport			
(5) Other (Please specify below)			

____

Q14. If you hired subcontractors outside Edmonton how would you rate the importance of each of the following factors ? (Circle the appropriate number for **each** item)

	Not at all important	Not too important	Neutral	Somewhat important	Very important
(1) Necessary contacts as a part of exporting	1	2	3	4	5
(2) Competitive reasons	1	2	3	4	5
(3) Company/ industry specific link	1	2	3	4	5
(4) Because of contacts within the firm	1	2	3	4	5
(5) Service not available locally	1	2	3	4	5
(6) Accessibility	1	2	3	4	5
(7) Competitive prices	1	2	3	4	5
(8) Reliability	1	2	3	4	5
(9) Communication costs	1	2	3	4	5
(10) Other (Please specify below)	1	2	3	4	5

Q15. Have you hired new employees in the categories listed below in 1987? (Check '√' the appropriate space in the table below)

	New employees
Managers and administrators	
Professionals	
Technicians	
Marketing-sales	
Labourers	
Craft workers	
Operatives incl. transport	
Other service workers	

Please estimate your total expenses on equipment and services specified in the table below. Then, divide your **total** into equipment purchased in Edmonton (Q16) and outside Edmonton (Q17). The sum of both tables should equal 100 per cent.

Q16. Equipment and services purchased in Edmonton (Mark the appropriate column)

per cent of costs

	Less than 10%	11-50 %	More than 50%
(1) Furniture & office supplies			
(2) Hardware & software			
(3) Printing services			
(4) Trucks, cars			
(5) Other			

Q17. Equipment and services purchased outside Edmonton

per cent of costs

	Less than 10%	11-50 %	More than 50%
(1) Furniture & office supplies			
(2) Hardware & software			
(3) Printing services			
(4) Trucks, cars			
(5) Other			

Q18. Please estimate the proportion of your total sales (local and non-local) made to each of the following markets. Mark the appropriate column table below

per cent of total sales

	Less than 10%	11-50 %	More than 50%
Sales to other private and public establishments			
(1) Agriculture, mining, oil and gas			
(2) Manufacturing			
(3) Construction and transport			
(4) Commerce			
(5) Finance, insurance and real estate			
(6) Business services			
(7) Government			
Sales to individuals			
(8) Individuals			
(9) Other			

Q19. What was the firm's original geographic market strategy when it was founded or moved to the city ? (Circle **one** number)

1 Concentration on the local market
2 Concentration on the external market
3 Both
4 No geographic strategy when it was founded

Q20. What is the firm's geographic strategy now ? (Circle **one** number)

1 Concentration on the local market
2 Concentration on the external market
3 Both
4 No geographic strategy

Q21. Do you think that your geographic strategy will change over the next 5 years ? (Circle **one** number)

1 Will be more local
2 Will be more non-local
3 No change

Q22. Do you have an employee(s) who is (are) exclusively responsible for marketing ? (Circle **one** number)

1 NO
2 YES

THE NEXT FEW QUESTIONS DEAL WITH THE GEOGRAPHIC DISTRIBUTION OF YOUR SALES BETWEEN THE LOCAL MARKET (WITHIN THE CITY IN WHICH YOUR FIRM IS LOCATED) AND NON-LOCAL OR EXPORT MARKET (PLEASE NOTE THAT THE TERM 'EXPORT' MEANS 'SOLD OUTSIDE THE CITY LIMITS' NOT NECESSARILY OUTSIDE ALBERTA OR CANADA).

Q23. Please estimate in percentages the distribution of your sales in 1987 between the following geographic markets (Mark the appropriate column in the table below)

per cent of revenues by region

	Less than 10%	11-25 %	26-50 %	51-75 %	More than 75%
(1) Edmonton					
(2) Calgary					
(3) Rest of Alberta					
(4) Other provinces (specify) ______					
______					
(5) Outside Canada (specify) ______					
______					

What was the total value of your sales in 1987 ? ('000$) ________________

Q24. Was the proportion of your sales outside the city limits greater than or equal to 10 per cent of your total sales ?

1 YES
2 NO (skip to Q29)

Q25. Please estimate any changes in the geographic distribution of your sales in the **last 5 years** (Circle **one** number)

1 More local
2 More non-local
3 About the same

Q26. Please estimate the expected change in the geographic distribution of your sales in the **next 5 years** (Circle **one** number)

1 More local
2 More non-local
3 About the same

Q27. Why did the firm develop its sales outside the city ? (Circle maximum three items)

1 Specialization/ local market was insufficient
2 Regional office strategy
3 Government contracts
4 'Desire' to develop export markets
5 Networks with firms in other regions
6 Opportunities
7 No reason

Q28. How did the firm get involved in non-local sales ? (Circle maximum three items)

1 Began as an exporter from contracts developed prior to the founding of the firm
2 Initiated contacts with clients outside the region
3 Used local contacts to develop external contacts
4 Performed services for a local firm doing business outside the region
5 Through the acquisition of government contracts
6 Other (specify) ____________________

THESE QUESTIONS ARE FOR NON-EXPORTING FIRMS ONLY.

Q29. Why did you choose to focus on the local market ? (Circle maximum three items)

1 Specialization/ insufficient export market potential
2 Regional office strategy
3 Local government contracts
4 Competition
5 Barriers to entry to other markets
6 No specific reason
7 Lower communication costs
8 Other (Please specify) ____________________

Q30. Please estimate changes in the geographic distribution of your sales in the **last 5 years** (Circle **one** number)

1 More local
2 More non-local
3 No change

Q31. Please estimate change in the geographic distribution of your sales in the **next 5 years** (Circle **one** number)

1 More local
2 More non-local
3 No change

THE LAST TWO QUESTIONS ARE FOR ALL FIRMS.

Respondent's job title ______________________________

Company's name ______________________________

Address ______________________________

____

THANK YOU. WE LOOK FORWARD TO RECEIVING YOUR ANSWERS. YOUR CONTRIBUTION TO THIS PROJECT IS VERY MUCH APPRECIATED.